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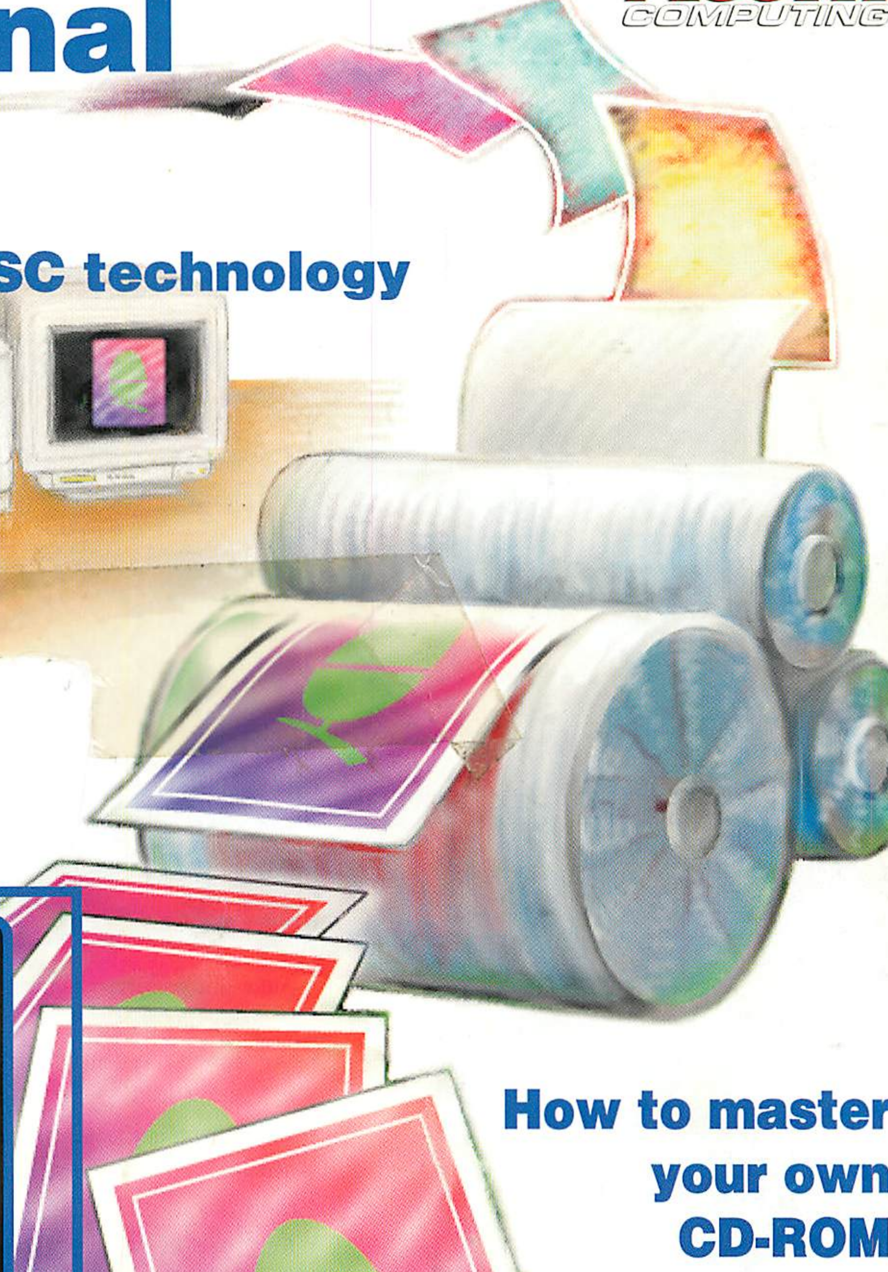
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Desk Top Publishing

Impression Publisher is the first full colour,

Impression Publisher is the most powerful version of Impression to be released so far. Like all versions of Impression, it is designed to be a complete document handling solution in one simple to use program.

Word processing and general features

Full word processing including advanced features such as:

- Integrated spell checker with check as you type and auto-correct and abbreviation expansion as you type
- Integrated WordWorks Collins English dictionary (with explanations) and Collins Thesaurus



- Automatic paragraph numbering and re-numbering
- Very powerful system of overlaying styles and effects
- Tool bars for quick and easy access to common functions, text effects and styles
- Keep together and keep with next, for advanced text flow control
- OLE - allows simple embedding and editing of other file types
- Package includes Equasor and TableMate OLE utilities, for simple and easy mathematical equation or table creation and editing
- Drag and drop text editing

Publisher can be your everyday word processor, it is also excellent at handling long documents, even books. It's ideal for simple brochures or adverts and the most complex page layout tasks.

Graphics

Publisher provides the most powerful set of graphics tools available:

- Instant graphics pan, scale and rotate using the mouse
- On screen anti-aliasing of ArtWorks files and draw files
- Separate contrast and brightness control for each individual graphic
- Turn greyscale or other graphics into duotone (any two colours) graphics
- Colour balance control for each graphic
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- Accepts pre-separated CMYK sprites and TIFF files
- Advanced PostScript screen control of each graphic
- Individual information on each graphic - size in bytes, file types, number of colours, resolution of sprites etc.

Page layout and DTP

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- Separates all graphics and sprites including 16 and 24-bit RGB sprites
- Named master pages now with page bleed control
- Full control of PostScript separations - screen angle, type, density, crop and registrations marks etc
- Supports multiple device profiles for separating to different printers
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- Irregular graphics frames with text flow around

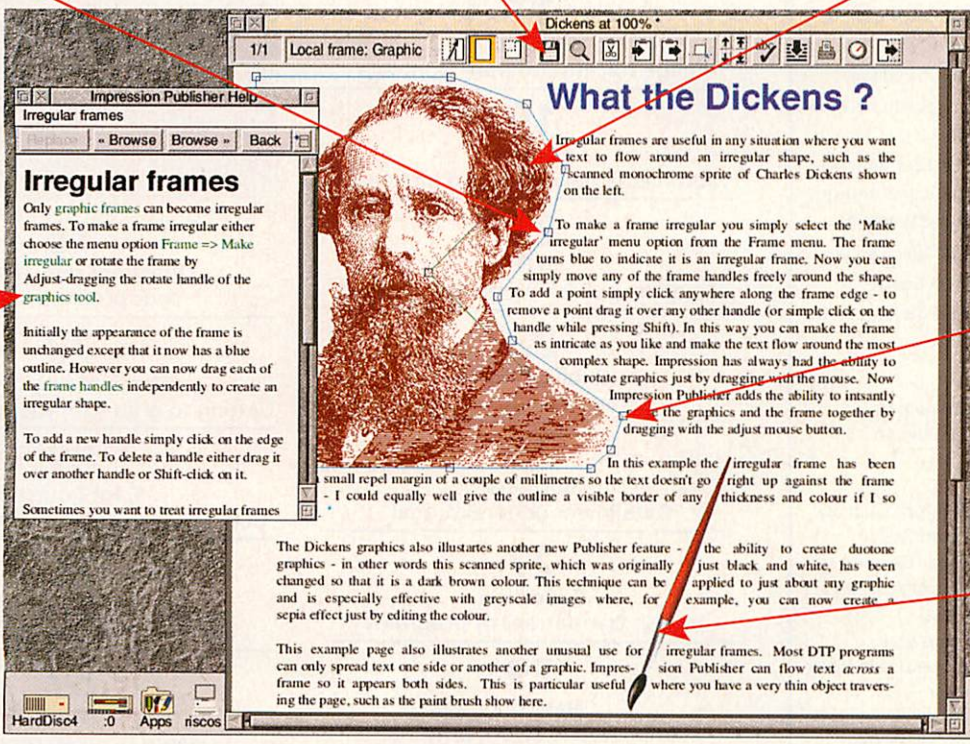
on Acorn RISC computers

24-bit capable publishing solution for Acorn RISC computers.

Irregular frame with text flowing around

Button bar

Black & white scanned image turned into duotone (any two colours) graphic



Hyper text help showing a page describing irregular frames. Full on-line documentation is provided using this system

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ArtWorks graphic in another irregular frame showing text flowing both sides of the graphic

- Frame border control and irregular frame repel margins
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These features are in addition to the many renowned Impression capabilities, such as unrivalled printing facilities, full on-line help (over 400 pages of on-line hyper text documentation and Acorn interactive help), speed of use and ease of use, etc, all combine to make Impression the best all round document production solution - for *all* types of document.

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This advert was created, edited, laid out, and four colour separated using only Impression Publisher

CONTENTS

Editor's letter

Thanks for all your support after the release of our one-off cover CD-ROM back in April: feedback has been very positive. It's far too early to say whether we'll be able to do another one, but at least this proves there is plenty of potential in the CD-ROM marketplace. The number of you buying CD-ROM drives through our offer is also quite amazing, so hopefully this will give the market the kickstart it needs to become as important as it should be.

Oh, one last thing. The First for Internet piece in April's Comms column was an April fool. Look at the number (01041) 995000 again... or should it be 01/04/1995? So you can stop trying to ring it now. Sorry!

Mark Moxon, Editor

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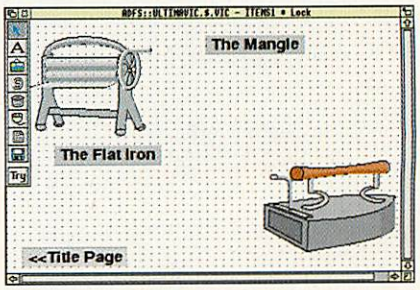
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EDUCATION



June 1995

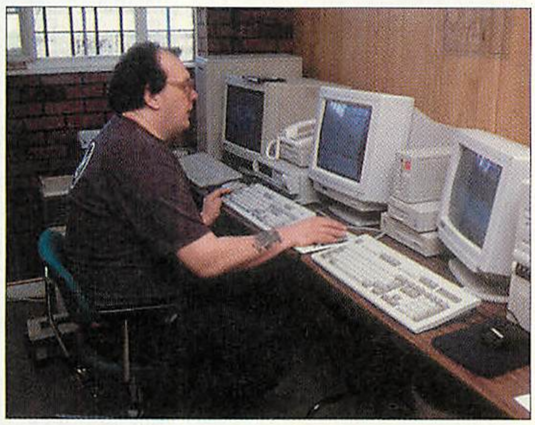
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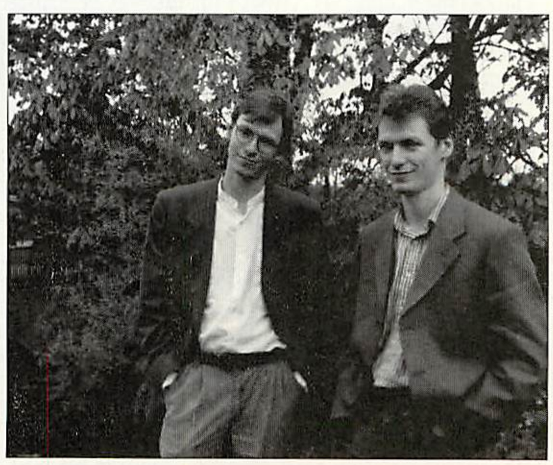
FEATURES











NEXT ISSUE
ON SALE 15 JUNE

ICS

0151-625 1006

Software

Selected prices 11th April 1995

Title	Supplier	Price
10 out of 10 Dinosaurs	100U	£18
10 out of 10 Driving Test	100U	£18
10 out of 10 Early Essentials, age -6	100U	£18
10 out of 10 English, age 6-16	100U	£18
10 out of 10 French, age 6-16	100U	£18
10 out of 10 Junior Essentials, age 5-11	100U	£178
10 out of 10 Maths Algebra, age 6-16	100U	£18
10 out of 10 Maths Number, age 6-16	100U	£18
10 out of 10 Maths Statistics, age 6-16	100U	£18
10 out of 10 Spelling	100U	£18
Advance	ACOR	£88
Advance primary site licence	ACOR	£181
Advance secondary site licence	ACOR	£440
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Advantage, KS2,3	LONG	£46
Advantage primary site licence, KS2,3	LONG	£119
Advantage secondary site licence, KS2,3	LONG	£189
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Amazing Maths, KS1-4	CAMS	£19
Apollonius PDT	OAKS	£140
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Architech	ASPE	£157
Architech site licence	ASPE	£489
Arcturus	OREG	£20
Arcventure I ... The Romans, age 8-12	SHER	£28
Arcventure I ... The Romans primary site licence	SHER	£52
Arcventure II ... The Egyptians, age 8-10	SHER	£28
Arcventure II ... The Egyptians primary site licence	SHER	£52
Arcventure III ... The Vikings, age 7-11	SHER	£28
Arcventure III ... The Vikings primary site licence	SHER	£52
Armlock	DIGS	£33
ArtWorks	COMC	£119
ArtWorks CD	COMC	£125
ArtWorks network licence	COMC	£650
ArtWorks site licence	COMC	£540
Axis	TBAO	£18
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Badger Trails, age 9-11 (not Risc PC)	SHER	£40
Badger Trails primary site licence (not Risc PC)	SHER	£67
Battlechess	KRIS	£20
BBC Basic Reference Manual	ACOR	VO£22
Betsi, age 7-12	4MAT	£32
Betsi site licence, age 7-12	4MAT	£63
Bodywise, age 9-14 (not Risc PC)	SHER	£42
Bookstore - Primary, KS1,2	ESMO	£35
Bookstore - Secondary, KS3,4	ESMO	£53
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CADet, KS3,4	MINE	£99
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Cambridge Pascal	OAKS	£63
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Crystal Rain Forest, age 8-11	SHER	£38
Crystal Rain Forest primary site licence	SHER	£67
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Easy C++	BEEB	£93
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Fontasy site licence	ICS	£45
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Font Pack 277	ISVP	£20
FontFX	DATS	£10
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Fun School 4, age 7-11	EURO	£18
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Granny's Garden site licence	4MAT	£48
Granny's Garden CD	4MAT	£28
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Granny's Garden Resource Pack	4MAT	£15
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Impression Publisher Plus network licence	COMC	£925
Impression Publisher Plus site licence	COMC	£775
Impression Publisher Plus as upgrade from Impression Publisher	COMC	£125
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Intertalk site licence	ACOR	£289
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ScanLight Video 256 A3000/A4000	COMC	£199
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Carriage is free within mainland UK if you pay on ordering.

Cheques should be made payable to Ian Copestake Limited.

You may also pay by ***credit card***, ***debit card*** or ***Switch***. We normally make ***no charge*** for this, and take no payment until goods are despatched. We need your address as known to the card issuer.

If you leave an order on our ***answering machine*** please include your telephone number, your card number and its expiry date (and issue number if any), and your calculation of the total payment due.

Official orders are welcome from UK educational and government institutions (invoices are due for payment within 14 days and are subject to carriage and late payment charges).

VAT is not included. Zero-rated items are marked V0. UK customers please add 17½% to all other prices. EC customers outside the UK please do the same unless you are VAT-registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

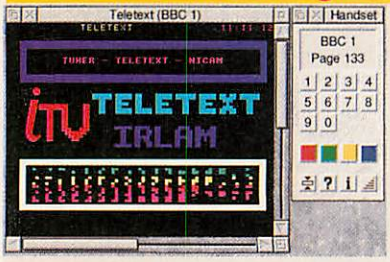
All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.

ICS
0151-625 1006
Authorised Acorn Dealer and Developer
Please make cheques payable to Ian Copestake Limited
Dept U16, 1 Kington road, West Kirby, WIRRAL, Merseyside, England, L48 5ET
Tel: 0151-625 1006 Fax: 0151-625 1007

E&OE W16 95AP11

Colour Scanner & Multimedia Update

Teletext, NICAM Digital Stereo & TV Tuner



iTV is a complete television reception system with TV tuner, Teletext and NICAM stereo audio decoder on a single expansion card.

iTV is simple to use with Channel and teletext page selection all carried out from a single RISC OS application.

As well as generating stereo audio & video, **iTV** can also switch in an external source so that you don't have to mess about swapping leads. A composite video output is provided to drive digitisers - with integral support for the **24i16** multimedia system.

- Teletext & NICAM support **as standard** including all software.
- Crystal controlled full-band tuner receives VHF/UHF from aerials, cable or VCRs etc.

ImageBank - £31.14 inclusive VAT P&P

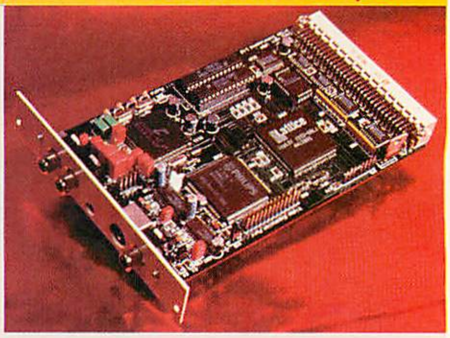


With a copy of **ImageBank** you can squeeze ten megabytes of 24 bit scans onto a single floppy disc, and catalogue them too!

ImageBank compresses pictures automatically, creating 'thumbnail' versions so that you can browse through them quickly and easily.

Double clicking on the thumbnail rapidly decompresses the image to its full size. Acclaimed in reviews as an invaluable utility.

24 Bit Video Digitiser & 16 Bit Audio Sampler



24i16 combines an advanced video digitiser with a 16 bit sound sampler. As well as brilliant still images **24i16** captures superb Replay movies and hi-fi audio.

A standard **24i16** can grab a complete TV field at a resolution of 768 pixels by 288 lines from any S-Video or composite source.

With the 1Mbyte VRAM option, full frames (768 by 576) can be obtained from still video sources. Replay movies (including sound) can also be captured at up to 25 images per second. Image size and rate are adjustable and limited only by disc and system bandwidth. A sophisticated application is provided which is both flexible and easy to use. Features include:

- Hardware scaling & anti-aliasing.
- Contrast, hue, brightness and saturation control in real-time.
- Real-time video expansion port for future connection to other hardware.
- Built-in ADPCM audio compression.
- Mixing and high quality filtering of built-in Acorn sound system.
- SWIs and example programs available to allow easy use from your own programs.
- Optional waveform monitor and vectorscope utilities.



24 Bit COLOUR Hand Scanner



The first Colour hand scanner for RISC OS machines. Supplied complete with a specially designed expansion card and application software for A400, A5000 and Risc PC. From monochrome or 256 grey scales up to full 24 bit scans this scanner does them all brilliantly. But don't just take our word for it:

"Irlam has led the way in bringing high quality colour scanners to the Arc..The first affordable 24-bit colour scanner...Irlam has obviously put a lot of effort into getting the best possible images from the scanner, and the images that ProI-Mage generates are excellent..an excellent product at a very reasonable price" - RISC User

"I was most impressed by the quality achieved by this handy unit...The entire package works very well and produces stunning results" - Archimedes World

Unlike many hand scanners this package is easy to use, scans straight and produces brilliant results. Features include:

- 24 bit scan head providing 16.7 million colour & 256 grey levels.
- Real-time high-quality preview whilst scanning direct-to-disc.
- Resolution up to 400 dots per inch.
- Powerful colour map controls allowing RGB components to be adjusted individually and effects previewed in real-time.
- 32 bit sprite format & takes advantage of new Risc PC modes.
- 24 bit Clear & industry standard compressed TIFF and JPEG files.
- Brightness, Gamma correction and Sharpness controls.
- Visual and audible warning if scanning speed is too fast.
- Images can be rotated and cropped after scanning.

Epson Colour Flat-Bed Scanners



Epson scanners are fast, reliable and produce consistently high quality scans plus they have the added advantage of supporting transparency adaptors. They can all be driven directly from the printer port of A3010, A4000, A4, A5000 and Risc PC so no expansion card is necessary (although there is one for A400's etc).

They can also work via Acorn, Cumana, Morley or Oak SCSI cards.

GT6500 This model scans at 300dpi (optical res) and interpolates up to 1200dpi in colour. SCSI interface is optional.
GT8000. 400dpi (optical) resolution and interpolates to 1600dpi. This has built-in parallel and SCSI ports. Faster than GT6500.
GT9000. This is the latest model. It scans at 600dpi (optical) and interpolates up to **2400dpi!** Scans are digitised internally to 30 bits which ensures that detail is faithfully reproduced even in dark areas. Has built-in parallel and SCSI ports.
Transparency Adaptor. This optional unit fits any Epson scanner and allows slides and black and white negatives to be scanned up to 5" x 5".

ProI Mage

ProI-Mage scanning software has been developed over several years. It is proven, easy to use, produces high quality images and supports a wide range of image formats including industry standard TIFF and compressed JPEG files. We can supply complete packages (see below) or just software.
ProI-Mage includes:

- Multi-tasking scanning with images building up on-screen.
- Fast previews and scanning direct-to-disc for large images.
- Superb 256 colour sprites plus 16 & 32 bit for Risc PC.

For the Complete Picture contact:

Irlam Instruments Ltd, Brunel Institute for Bioengineering, Brunel University, Uxbridge, Middlesex, UB8 3PH. Tel/Fax 01895 811401

All hardware products come with 1 year full guarantee. E&OE.

Access VISA

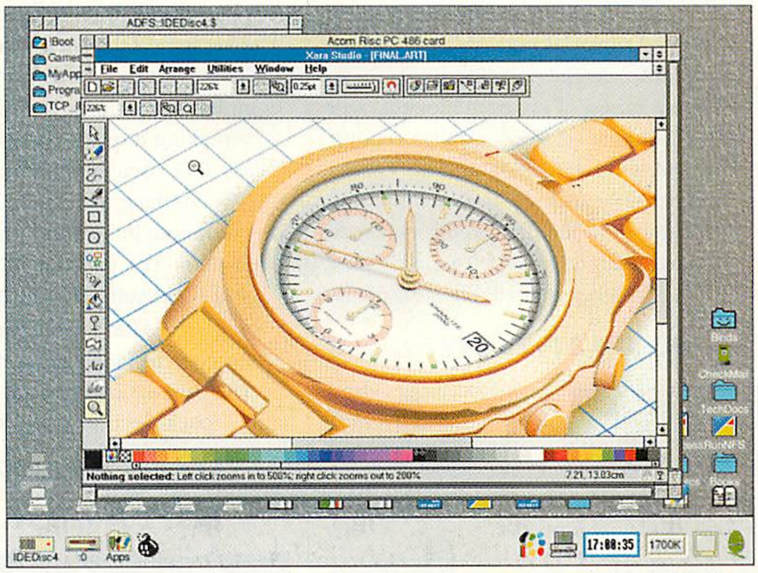
News

They said it couldn't be done

WELCOME but surprise news has come from Aleph One – it has announced a pair of limited edition faster Risc PC 486 cards. It's a surprise, because after Acorn and Aleph One first tested the results of their joint project, it seemed clear that anything faster than a 33MHz 486 chip would return little performance benefit. The unconventional bus interface between the 486 card and the Risc PC, managed by the infamous Gemini custom chip, was the reason. But Aleph One has since stumbled upon a family of Intel 486-compatible alternative chips which can deliver substantially increased performance over the standard 33MHz 486SX Acorn offering.

Reviewers have generally agreed that Acorn's 486 Risc PC co-processor card is more than adequate for the majority of every day Microsoft DOS and Windows uses – and certainly much more usable than earlier PC-compatible solutions on the Acorn platform. However, dismay greeted the news that we would have to wait until the end of this year for the Mk II Gemini custom chip before faster 486 processors could be used to replace the standard chip. That dismay has now been partially reversed as Aleph One has, after all, announced 486DX40 and 486DX2/66 versions of the card, priced £349 and £399 + VAT respectively – significantly cheaper than previously predicted. Those prices do not include DOS or Windows, and Aleph One is unable to offer a part-exchange scheme for owners of standard 486 PC cards.

If you replace the £99 card's standard AMD486SXL processor for an Intel 486DX2/66, Aleph One says the increased performance is less than ten per cent – it should be roughly a hundred per cent. The bottleneck is a processor caching issue, which should be alleviated by the Gemini 2 custom chip at the end of the year. However, Aleph One has been a long-time customer of Cyrix, using its processors in the old podule PC cards. Apparently quite by chance, Aleph One engineers discovered that Cyrix versions of the 486 have a different processor caching architecture, or a write-back cache instead of the more common write-through variety.



Xara Studio is rumoured to run faster already on the Acorn 486 card than *ArtWorks* does in its native Risc PC environment (see in brief story). It should really fly on the new Aleph One cards.

In our review of the standard Acorn 486 card, we remarked that the 33MHz AMD486SXL performed more like a 25MHz part, the one quarter erosion in performance due to caching anomaly. Aleph One's benchmarks show that with only a 21 per cent increase in clock speed, the new Cyrix 486DX40 card processor is actually 40 per cent faster than the original. As the Cyrix chips are DX specification with floating point acceleration built in, computationally intensive applications, like three dimensional modelling, drawing and CAD packages, are also considerably faster – floating point calculations running 60 times faster on the Cyrix 486DX40 and a 100 times faster on a Cyrix DX2/66. Overall, the two cards deliver *Windows User* magazine benchmark ratings nearly 60 and 100 per cent better than the standard card.

Now for the not so good news. Sensitive to the knowledge that potentially much better and probably cheaper Gemini 2-based products will be available in a few months, Aleph One isn't going to make very many of the new cards. In fact, customers will almost have to prove that they understand this fact. On top of that, the cards aren't simply Acorn stock with the processor replaced – each one has extra wiring and chips grafted on. Aleph One also warns it won't be possible to upgrade these cards with more exotic 486 processors either.

If you really must have a faster PC environment for your Risc PC now, especially where floating point maths is concerned, Aleph One will oblige. Otherwise, the advice is to hang on until the second-generation product arrives. Nevertheless, it's reassuring to see evidence that faster 486s really can be used on a Risc PC.

Aleph One
Tel: (01223) 811679
Fax: (01223) 812713
e-mail: sales@aleph1.co.uk

Free CD-ROM drive for A4000 customers

CUSTOMERS buying Acorn A4000 computers between 7 April and 30 June this year will be eligible for a free CD-ROM drive from Acorn. The drives have a list price of over £200 + VAT. All the customer has to do is return a special voucher to Cumana Limited supplied by their Acorn dealer with the computer they have purchased. Cumana will then despatch the free CD-ROM drive. There will be no extension to the offer at the end of June and vouchers must be submitted for processing no later than 14 July.

Mike O'Riordan, Acorn's sales and marketing director, says the offer underlines Acorn's long-term commitment to bring greater multimedia capability into the classroom, which is where most A4000s end up.

Acorn Computers
Tel: (01223) 254254

First Choice for Quality Software

SLEUTH 2

Optical Character Recognition

Sleuth 2 is a truly professional OCR system with superb features like auto page zoning, style recognition, fully integrated spelling checker and guided editing. Sleuth converts scanned images of printed material into ASCII files and can handle virtually all popular fonts in a wide range of styles achieving over 99% accuracy on good quality images. You will need 4Mb Ram and an Acorn-compatible scanner with a minimum resolution of 300 dpi. Sleuth can scan images directly using Twain drivers, which are available separately.

SLEUTH 2 Price £99 + £1.70 Carriage





MASTERFILE

General Purpose Database

Masterfile is a fast and flexible general purpose database providing powerful data management facilities suitable for business, education and home.

Masterfile is probably the easiest Acorn database package to setup and use! Its many features include a comprehensive indexing system, subsets which limit access to just those records which match search criteria, and a report generator which allows databases to be printed in a variety of card, spreadsheet or label formats.

MASTERFILE Price £49 + £1.70 Carriage

EASY C++

C++ Development System

Easy C++ is an excellent implementation of the in-vogue object oriented programming language C++. This implementation conforms to the latest Stroustrup text and supports both Templates and Exceptions. Unlike some other implementations, Easy C++ is not a C++ to C translator but compiles C++ source directly to ARM code making it quick and easy to use.

Easy C++ uses the much praised Easy C WIMP interface which allows programs to be compiled, linked and run at the click of a button. The package includes ANSI C and IOStream libraries, Make facility, integrated ARM assembler, source level debugger and also supports Throwback.

The original highly acclaimed Easy C package is also still available.

EASY C++ Price £99 + £2.70 Carriage

EASY C Price £59 + £2.70 Carriage



TYPESTUDIO

Flexible Font Effects

TypeStudio is the best selling font effects package that allows outline fonts to be manipulated to produce professional quality posters, banners, logos, letterheads etc. — the possibilities are endless.

Text may be flowed along straight or curved paths, or moulded into almost any shape. A wide range of interesting effects may then be applied to enhance the design further. These include: wall, floor and graduated shadow, 3D text, mirror, plinth, slant. You can use all of these effects on Draw files too! TypeStudio is intuitive to use, and unlike some other packages, paths and moulds may be created and edited using the drawing tools provided, so you can do all your design work using just the one package.

TYPESTUDIO Price £29 + £1.70 Carriage

HEARSAY

Advanced Communications

Hearsay is the definitive general purpose communications package for Acorn systems, designed for easy communications for the first time user, but with advanced features making it also the professionals choice.

Hearsay provides high quality VT terminal emulations, and is ideal for use with Prestel, Campus 2000, Compuserve and virtually all bulletin board systems. Other features include: background file transfer, number directory, script language and support for popular modems.

HEARSAY Price £75 + £2.70 Carriage





HARD DISC COMPANION

Reliable Hard Disc Backup

Hard Disc Companion is the acclaimed package that provides a structured system for backing up hard drives to floppy discs and other devices.

It supports Full and Incremental backups with data compression. Files to be backed-up or ignored are chosen using simple drag operations. The backup specification may be saved in a script file for use at a later date.

In the event of disc failure or accidental file deletion, files may be retrieved using simple drag operations.

COMPANION Price £45 + £1.70 Carriage

BEEBUG

Beebug Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. 01727 840303 Fax. 01727 860263

Please add VAT to all prices. Telephone order hotline 01727 840305

3DO squashes rumours of ARM split

PRESS pundits have consistently predicted that 3DO, the company behind the 3DO advanced multimedia game console platform and an early adopter of ARM technology, was to drop ARM technology from its future products because it was too slow. Those rumours must surely end once and for all as ARM Ltd and the 3DO Company have just announced a cross-licensing agreement.

3DO was one of the first third-party companies to adopt ARM processor technology after Acorn spun-off ARM Ltd back in 1991. All 3DO players have an ARM6 processor core inside them, executing the main application software which is produced by the 3DO development package. Last year, the ARM cynics got even more excited when 3DO revealed plans to accelerate 3DO players using Motorola PowerPC processor technology. *Acorn User* said at the time that this was to improve graphical performance, not to eliminate the ARM-based element within 3DO.

Critics still say the ARM6 3DO originally opted for was not up to the job, but the new agreement between ARM and 3DO should help address that issue. ARM will help 3DO make better ARM6 derivatives for its players and in return ARM gets to use 3DO NTSC/PAL video encoder technology. 3DO's chief operating officer, Hugh Martin, commented: 'The ARM RISC architecture is ideal for a wide variety of system designs requiring advanced performance at a reduced cost. Our expanded agreement with ARM represents a significant contribution to 3DO's already vast technology portfolio and is testimony to our long-term strategic relationship with ARM.'

Cumana lands Acorn multimedia deal

ONE hundred and sixteen primary and one special school in the Dumfries area will soon be equipping their Acorn computers with CD-ROM drives, supplied by Cumana. The deal was done with the Dumfries Advisors' Centre, which has standardised on the Acorn multimedia platform. The supply of CD-ROM drives co-incides with the Centre's production of a commemorative CD-ROM marking the bicentennial of the death of Scotland's national poet, Robert Burns.

The Acorn-format CD-ROM is called *The World of Robert Burns* and is a joint production between Cambridgeshire Software House and the Dumfries and Galloway Education Authority. The CD features Burns' entire poetic repertoire plus extracts from his many letters and hundreds of pictures. MPEG and Acorn Replay video clips are also featured on the CD.

Regional advisor for Dumfries and Galloway Education Authority, Tom Gilmour, says the Acorn platform was the only choice for them: 'The multimedia capability of Acorn's computers means we feel fully justified in purchasing CD-ROM drives for 117 schools in the area. With the vast majority of our schools being equipped with Acorn computers, *The World of Robert Burns* CD-ROM is able to reach the widest possible audience and, therefore, achieve the greatest benefits.'

Acorn User diary

Date	Event	Venue	Contact
Friday 9 June – Saturday 10 June	Lindis Computer Carnival	Norwich	Lindis: (01986) 785476
Sunday 11 June	ARM Club open day	Belmont School, North London	The ARM Club: 0171-624 9918
Friday 21-28 July	World Conference on Computers in Education	Birmingham International Conference Centre	WCCE95: 0121-428 1258 e-mail: wcce95@cs.aston.ac.uk
Friday 27 Oct – Sunday 29 Oct	Acorn World Show 1995	Wembley Exhibition Hall 1	Ticket hotline: (01933) 441448

Computers for Schools on the Internet

As usual, enquiries about the Tesco Computers for School scheme, in conjunction with Acorn, are being dealt with over the telephone (0171-580 9370), but this year the helpline staff can also accept enquires over the Internet – send your e-mail to computers_for_schools@entity.email.com.

Whoops!

The packs of *Impression* borders reviewed in April's issue are not produced by Fabis Computing. In fact, they are designed and sold by Start Designs, who also produces a whopping 1000 border pack for just £26 (no VAT to add). Start Designs can be contacted on (01283) 537209. Apologies for the error.

Xara Studio on the Risc PC?

At the *Acorn User* Spring Show in Harrogate, Computer Concepts will be showing its new PC version of *ArtWorks*, called *Xara Studio* – Xara being the name of the new company Computer Concepts has set up to deal with the PC side of its business.

Studio will be shown running on a Risc PC 486 card and, horror of horrors, it's said to run marginally faster on the humble PC card than *ArtWorks* in its native Risc PC environment.

The explanation is that the drawing routines inside *Studio* have been considerably optimised compared to those in *ArtWorks*. So if *ArtWorks* blows away all the traditional PC drawing packages out there, *Xara Studio* ought to be an immediate hit when it is released, hopefully during May. Interest in it was certainly great at the Windows 95 show in February.

Congratulations

Our news editor, Ian Burley, is to get married in May. We would like to congratulate Ian and his fiancée Julia, and wish them all the best for the future. It couldn't happen to a nicer couple.

Digital Services fails

DIGITAL Services Limited, best known in the Acorn world for the *Squirrel* database package, plus utilities like *ArmLock*, has gone in to liquidation following a cash flow crisis, leaving debts amounting to almost £500,000. Acorn is the largest unsecured creditor, owed £91,661.

Digital Services had only recently announced *Nucleus*, an ambitious networking product for schools. It was probably this which was the ultimate cause of Digital Services' demise as there were no funds available to finance the final development of the product and so bring it to market. Meanwhile, its computer maintenance business was faltering and no extra funding was available to sustain the company.

Liquidators Rogers Evans Accountants and Licensed Insolvency Practioners have managed to sell three parts of the company. Computer maintenance rivals, Aztek, have bought Digital's hardware stocks and existing maintenance contracts and moved into the old Digital premises in Cosham, Hampshire. Aztek's managing director, Ian Stride, told *Acorn User* that while Aztek had no experience of the Acorn market, he was interested in entering the schools market in which Acorn dominates, and negotiations with Acorn were happening to explore the possibilities of becoming an Acorn dealer.

Cumana Limited has bought the *Nucleus* schools networking project and is working to bring this to market as soon as possible. The balance of the software business was purchased by former director Denis Bastaple who will continue to develop and sell *Squirrel* and other former Digital titles. According to Rogers Evans, the bulk of enquiries they have received from Digital customers, including many from abroad, has been regarding software, so it would seem Bastaple has a bright future to look forward to. By the time this issue of *Acorn User* is published, Bastaple should be contactable via the old Digital Services telephone number: (01705) 210600.

Unfortunately, it is unlikely that any of the outstanding £240,874 owed to the unsecured creditors will be realised, according to Rogers Evans. For more information about the demise of Digital Services Limited, contact Rogers Evans on (01703) 335888. Aztek is contactable on (01705) 207207.

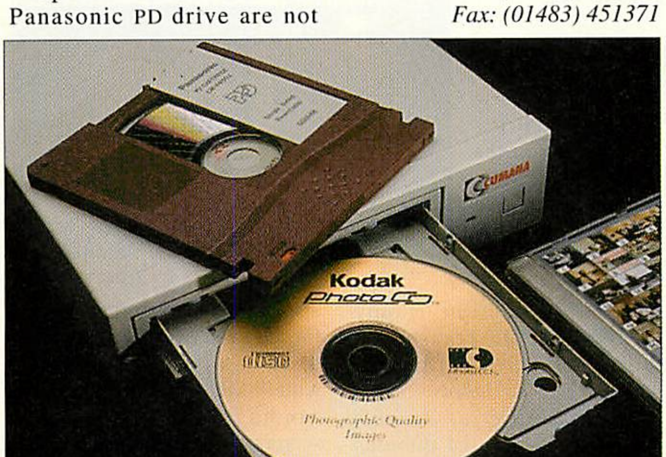
Cumana announcements

TWO years ago you wouldn't have had much change from £400 for a measly double-speed external CD-ROM drive. Now, for under £500, Cumana will sell you a quad-speed CD-ROM which can also work as a rewritable optical disc drive. The Panasonic PD drive promises good CD-ROM performance with 600K/sec transfer rates, a large 256K buffer and sub 200ms track access times. However, it is the drive's ability to behave like a large, if slower, interchangeable hard disc drive, using £40 650Mb optical discs, which singles out the Panasonic PD drive.

The secret of the new drive is a brand new micro optical head assembly which has a simplified positioning mechanism, developed by Plasmon and Matsushita, Panasonic's parent company. Phase change recording is claimed to be superior to MO (magneto optical) technology as only a single pass is required for writing data, which makes it faster and less energy is required by the encoding process. The term 'phase change' refers to the process of switching the data recording medium from an amorphous to crystalline state and vice-versa. No magnetic component is required to write data as in MO technology, and phase change media is immune from stray magnetic fields and physical head crashes. A special tray-loading mechanism enables the drive to automatically detect whether a CD-ROM or phase change optical disc is currently loaded.

Optical discs for the Panasonic PD drive are not compatible with the more established MO (magneto optical) disc standards out there, but for use as an inexpensive and re-usable local archive, especially for network users, it looks very attractive. Internal fit drives are the same size as a conventional CD-ROM drive, so they can be fitted conveniently into a Risc PC. External versions for other Acorn models are also available.

Cumana
Tel: (01483) 503121
Fax: (01483) 451371



The new CD-ROM drive from Cumana will both read and write discs.

Getting Smart over fonts and DTP

Fabis Computing's *EasyFont3* has been enhanced to accept fonts automatically from Zenta Multimedia's new *Font Emporium* CD-ROM as well as the new iSV font pack. Fabis will be at the Harrogate *Acorn User* Spring Show and sharing the limelight on the Fabis stand will be Aaron of iSV and James of Smart DTP to answer questions and give advice. To upgrade to the latest version of *EasyFont3*, return your original disc to Fabis Computing with a pair of first class stamps.

Fabis Computing
Tel: (01283) 552761
e-mail info@fabis.demon.co.uk

Widget software for Pocket Books

Knebworth-based Psion Series 3 specialist, Widget Software Limited, has now released its spring/summer newsletter and catalogue. This will be of interest to Acorn Pocket Book owners as most Series 3 software and accessory items are compatible with the Pocket Book. Among Widget's new releases are a classic games compendium, including a fruit machine simulator, text adventure game, *Reversi*, *Poker*, a version of *Patience*, *UXB* and a shape-fitting logical puzzle called *Quad*. Widget is also offering new applications for bar coding, linking *Agenda* or *Schedule* (Pocket Book II only) to PC personal information managers like *Lotus Organizer*, database enhancers and more.

Widget Software Limited
Tel: (01438) 815444
Fax: (01438) 815222
e-mail widget@cix.compulink.co.uk

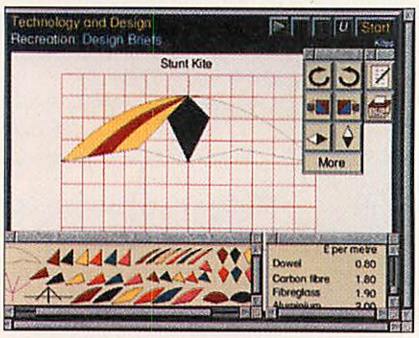
New from David Pilling

Calling all chess fanatics: an updated version of *Chess* by Colin Granville is now available from David Pilling, priced £16. *Chess II's* 3D board view can be rotated and there is a 2D option as well. A hint function is included and games can be saved as sprites, *Draw* files or plain old text. The upgrade price is £10 plus your original disc.

David Pilling
Address: PO Box 22, Thornton Cleveleys, Blackpool, FY5 1LR
e-mail david@pilling.demon.co.uk

Technology and Design CD-ROM

A cross-curricular Acorn-format CD-ROM has been published by Oldham-based SEMERC to address technology and design. The *Technology and Design* CD-ROM is aimed at primary and secondary pupils at Key Stages 2 and 3. SEMERC says the CD is designed to make pupils think about the technology and design which goes into every-day life. Everything is based on a fictional town called Skegton and SEMERC suggests the CD will be a useful resource for English, Geography, History and Maths teachers, as well as in Design and Technology departments.



The *Technology and Design* CD-ROM

Four types of activity are contained in each of the themes covered by the CD-ROM: Slide Show, Film Clips, Design Briefs and Notebook. The Slide Show section is supported with text and speech recordings, while each Film Clip section contains a minimum of two Acorn Replay movies. Design Briefs contain a library of activity objects which can be printed or saved as *Draw* files. Activities are projects pupils can try out to improve local amenities, from helping supermarkets keep track of their shopping trolleys to planning and improving the local public swimming pool. Pupil involvement is provided both at the computer and away from it as an on-going activity.

Technology and Design was developed to work with SEMERC's familiar *My World 2* package and is priced £49 + VAT.

Northwest SEMERC (Oldham)
Tel: 0161-627 4469
Fax: 0161-627 2381

Acorn in ram-raid drama

AT some time between the evening of Saturday 8 April and the early morning of the following Sunday, thieves ram-raided the premises of Acorn's exhibition contractors and made away with dozens of carefully selected Risc PCs from exhibition and loan stocks held there. Adding insult to injury, the thieves returned on the Monday to remove monitors which had been left behind previously.

Logic suggests that Risc PCs are not the most obviously sought-after computers on the black market, unlike Apples and PCs. The valuable memory chips inside the stolen computers could have been the real prize. Nevertheless, Acorn has asked *Acorn User* to warn readers that if they are offered any Risc PCs which have no sound ownership history, could they please contact either Acorn or the police immediately. It ought to be noted that Risc PCs contain unique identification codes, so the missing machines should be traceable.

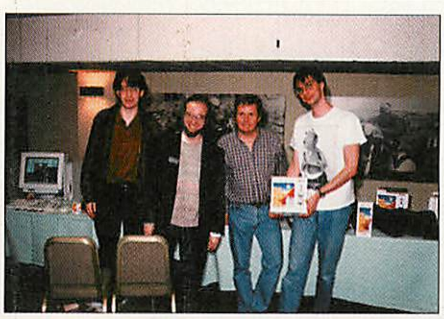
Meanwhile, Acorn's exhibition team is working hard to ensure it is able to meet its national event commitments, including the *Acorn User* spring show in Harrogate.

Acorn Computers
Tel: (01223) 254254
Fax: (01223) 254262

Acorn success in C programming

ACORN may not have all the latest wizz-bang tools for programming in C and C++ compared to those working in the PC, Apple and Unix platforms, but that didn't stop an Acorn programming team putting up an impressive display at a recent programming challenge held by the Association of C and C++ Users (ACCU). Acorn's team was up against teams from IBM, Borland, Micrososft and Symantec. Only IBM narrowly pipped Acorn's team efforts at the post.

The task was to implement a lift control system for the Sirius Cybernetics Corporation Happy Vertical People Transporter (borrowed from Douglas Adams' *The Restaurant at the end of the Universe*). Acorn's crew were given the dubious award of 'most novel interpretation of the specifications' and also 'the sledgehammer award for the most overpowered hardware' – a four slice Risc PC with 98Mb of RAM. The ACCU can be contacted at e-mail: secretary@accu.org and the C Acorn User Group (CAUG) at caug@accu.org.


Acorn's C gurus

Schools' competition

The winners of our Schools' Competition are as follows: Category A Winner: St.Barnabus's School. Runner up: Alverthorpe St.Paul's School. Highly commended: Easingwold School. Category B Winner: Eskdale School. Runner up: Cranbourne Primary School. Highly commended: Arthur Mellows Village College. Category C Winner: Sedgefield Community College. Runner up: Ringmer Community College. Highly commended: Biggar High School.

Congratulations to the winners, and thanks to everyone who entered. We'll have more details next month, along with the entries that won.

Dalriada Data competition

Congratulations to Mark O'Mahony, whose suggestion of the name *ChartIT* for Dalriada's new flowchart program wins him a copy of the program. The runners up, who each win a copy of *TableMate*, are: Keith Vernon, Southampton, with *Easy Flow;* Brian Hesketh, Dorset, also with *Easy Flow;* Hill Boyd, Co Antrim, with *Orinoco;* Christopher Murray, Birmingham, with *Depict*.

CD-Circle competition

Congratulations to the following, who all solved the acrostic correctly and win a CD-ROM packed with clip art. The answer was, of course, 'Acorn User'.
B Jenkinson-Dix, Cambridge
James Kay, Birmingham
Dave Francis, Congleton.

Keystroke competition

The following ten lucky people correctly identified that Quantum Software was an 'Innovator', and each wins a copy of *Keystroke*. Mr S B Cahill, Holme; Mr W Fitzpatrick, Moreton; Mr A Welsh, Glasgow; Margery Swinton, Stirling; Sue Daniels, Dartford; Anthony Moore, Accra Ghana; Mr N W McLean, Weymouth; Tim Broughton, Harrogate; David J Lewis, Worcester; Mrs H Mercer, Bath.

Power to perform

The Power-tec range has a fast new member.

When considering which SCSI card is the best value for money performance and functionality are the prime considerations.

The Power-tec range of high performance upgrades now includes a SCSI 2 interface, offering searing speed combined with ease of use.

With the ability to support twice the amount of storage than any other SCSI interface on the market, the Power-tec SCSI 2 card puts up to 4GB of data spread between eight SCSI hard disc icons on your desktop.

The power within

A highly experienced development team has generated a unique product - highly versatile and yet easy to use.

With an express installation option mapping existing hard disc partitions automatically you will wonder why all other SCSI software isn't this easy to use.

With FLASH ROM holding the code, updates on the existing software can be programmed in without any disassembly of the computer.

Fully featured

Making use of Direct Memory Access (DMA) the card offers the highest rates of performance available in the Power-tec range.

With built-in driver software for a range of CD-ROM drives and uniquely, DAT tape streamer software included, this interface is set to become the *de facto* standard.

In keeping with the range of Power-tec products, the manual is clear and easy to read with good technical content.

Worry-free ownership

Of real benefit to customers are the warranty arrrangements. In addition to the standard 12-month guarantee, you receive 30 days on-line telephone support that includes software updates and can be extended.

All in all, an excellent product that is set to take the market by storm.

Product: Power-tec SCSI 2 Card
Supplier: Alsystems
Cost: £169 + VAT
Trade Enquiries Welcome
Tel: + 44 (0) 1420 561111

- 8 SCSI icons on the icon bar.
- Double normal maximum storage from 2GB to 4GB.
- Ability to read to a device and write to another concurrently.
- Very fast. (Up to 5MB/sec.)
- Ability to read other manufacturers' partitions.
- Express (easy) setup as well as advanced setup options.
- Streamer software built-in.
- Flash ROM for easy re-programming.
- Ability to set read-only partitions.
- Multi-tasking low-level formatter included.
- Removable media, and CD ROM support.
- Ability to read DOS partitions.
- Auto termination option.
- Internal and external connector.

Power-tec
SCSI II



£175+VAT

Tomorrow's Technology Today

Alsystems, 47 Winchester Road, Four Marks, Alton, Hampshire, GU34 5HG, England. Tel: +44 (0) 1420 561111

Iota Outliner redeems Acorn portfolio

WHY is it that just after an article gets published containing a section unequivocally slating the Acorn platform for not having a particular application, that very application gets launched?

The area to which I refer is tracing programs. As you may have read in the Mac vs Acorn graphics platform shoot-out, I regretted that the Acorn did not have a powerful enough program in this area to allow comparison with the magnificent *Adobe Streamline*. Well, things are not quite what they were, as Iota has launched *Image Outliner*, a fast and very effective sprite-to-vector tracing application that does a better job than any other Acorn tracer, comparing well to *Streamline*'s output, and at just £49 it won't send you into bankruptcy either. My sincere apologies to the team at Iota for the omission from the article.

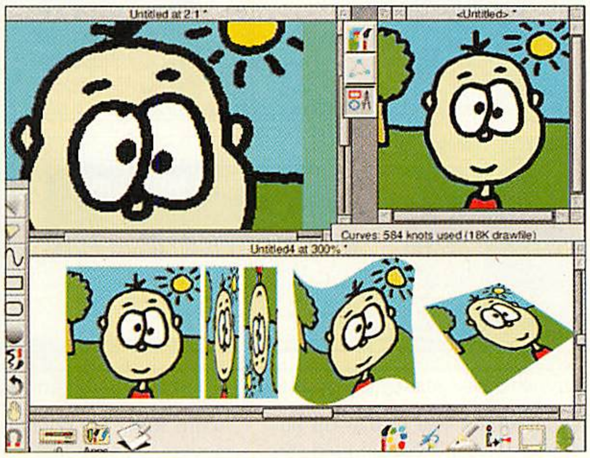


Image Outliner – simple but powerful – turns your bitmaps into vectors.

Image Outliner imports sprites directly by dragging them onto the icon or into an *Outliner* window, and after a click of the conversion tool on the little tool bar it's off. Processing is totally automated and you can output the vector image as a *Draw* file and then do just about anything with it.

The program does not handle 24-bit sprites so you have to convert them down to 8-bit files first. This inconvenience is *Outliner*'s worst problem, albeit a minor one. The other thing that is not as easy to understand as the rest of the application's functions and features is the preferences window for tracing accuracy.

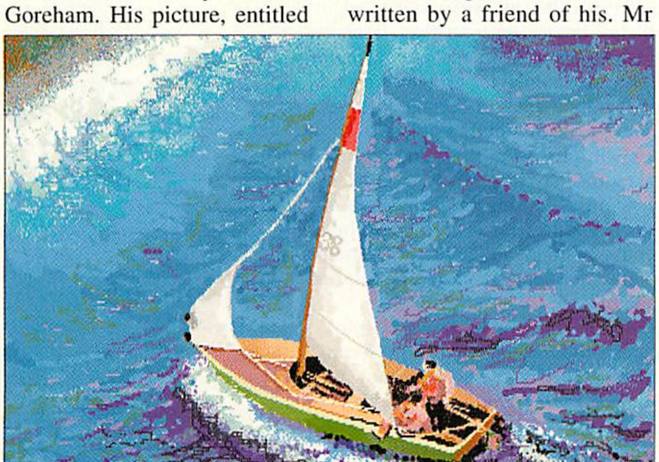
This window allows you to modify a number of tracing parameters governing straight line and curved line tightness, knots and corners. The effects of changing these variables are not visually represented in any way which means that manual-phobes will have to spend time trying out what all the different settings do.

At the end of the day, this kind of application is extremely useful and effective for certain graphics and DTP purposes, and is a very welcome newcomer to the Acorn graphics platform portfolio.

Iota Software
Tel: (01223) 566789
Fax: (01223) 566788
E-mail: info@iota.co.uk

Pic of the month

PIC of the month has been won this month by Mr S H Goreham. His picture, entitled *Yacht*, was painted using his A3000 computer and software written by a friend of his. Mr Goreham is our most senior winner of picture of the Month, a remarkable 65 years separating him from our youngest winner, Kane Clover. What is most pleasing about Mr Goreham's entry is the fact that with limited resources and a restrictive, 256 colour palette, the image has an earthy, oil-painted feel about it, something many have not achieved with much more powerful hardware and software at their disposal.



Please remember to send your entries in with an explanation of the method, and a text file with your name and address on it.

Spacetech developments

Spacetech is back on the development bandwagon in response to version two of Pineapple's *Studio 24*. Spacetech's *Photodesk* is another couple of months away from version two, but if speculation is anything to go by, it is going to be worth the wait. The specification includes a completely redesigned virtual memory system, which is claimed to be as fast as anything else around (not much of a benchmark figure, but it sounds promising); colour correction, calibration, and conversion *à la Photoshop*; *PowerTools* for the Acorn, featuring fractal texturisation and more effects than this column could do justice to; and, yes you guessed it, lots more.

The big question in my mind is how *Photodesk* will stand up against *Studio 24* and the new-look *DA's Picture* which is expected to arrive shortly.

Spacetech
Tel: (01305) 822753
Fax: (01305) 860483

Disclaimer

Not so recently, I received a letter of complaint concerning the Acorn Christmas Card competition. The letter was written about the way *Acorn User* worded the rules of the competition and the way in which it opened the competition to professional as well as amateur designers.

Acorn User and I do regret stating that the images had to be submitted as *Draw* files and that the winner was a professional designer. However, it should be noted that *Draw* files are just as capable at containing bitmap graphics as sprite files, professionals were not excluded from the competition, and it was not an *Acorn User* competition. For any more Christmas Card Competition complaints, please contact Acorn Computers Ltd on (01223) 254254.

Contacting me

You can contact the Graphics page by writing to me, Jack Kreindler, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: jack@acornusr.demon.co.uk.

DoggySoft

DoggySoft releases Termite Internet

Internet access has recently been made easier, with the release of the Internet extensions to our terminal software Termite.

Termite Internet provides access to all the major facilities of the Internet with the minimum of fuss, and absolutely no cryptic commands. Instead, a descriptive control panel is utilised to make your entry to the Internet as painless as possible. Clicking on the icons opens icon-based interfaces, from a live clock face to show the time, to a RISC OS filer–style interface for transferring files.

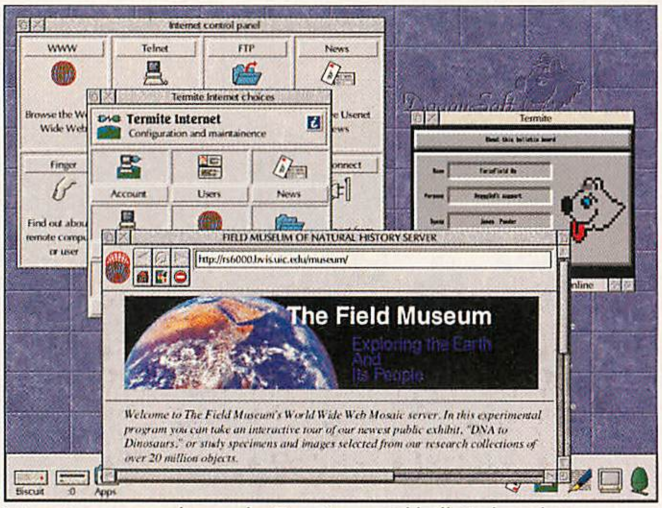
One important consideration is your Internet provider. Any that provide a direct SLIP link should work; Demon Internet is one such provider we recommend in particular. This is partly because Termite Internet is pre–setup to use Demon — you just have to tell it who you are — but mostly because they have access points all over the country, so that most have access with a local call. Most Internet providers share Demon's low charge of £10+VAT per month with no on–line charges, not even if you connect to a computer in America!

In any case, the configuration and maintainance program is very easy to use, even to change the Internet provider used.

Don't forget that Termite Internet is an extension to the Termite communications package, which allows you to dial–up bulletin boards (BBSs) around the world. Termite's multi–session capability means you can even access the Internet and a BBS at the same time, with two modems!

If you don't feel ready for the Internet, why not try calling local and national BBSs? It's a great way to make friends, download PD, chat, and so on. Indeed, we provide our own support BBS, Furzefield Hq, from which you can download updates and extensions to Termite and our other products, as well as sort out any problems or queries you have.

To use Termite, you need any Acorn RISC OS computer, and a modem. Two models we recommend in particular are the Sportster 14k4 and 28k8. The 28k8 model is twice as fast, but costs more and requires an A5000 or Risc PC (or upgraded serial port).



Internet access made easy by Termite — and bulletin boards too

Termite	£49.95
Termite Internet	£79.95
Upgrade from Termite to Termite Internet	£30.00
Sportster 14k4 modem	£149.95
Sportster 28k8 modem	£269.95
Modem lead	£6.95
ArcFax	£34.95

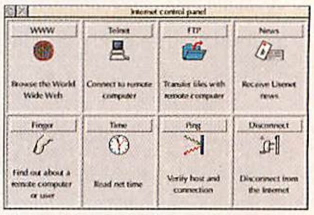
(p&p: software £3, modems £8. No VAT to add.)

What is this Internet?

The Internet is a global network of hundreds of smaller networks. Hence, no organisation owns it as a whole. Most of the component networks are run by corporations, governments, and academic institutions, but some (known as Internet providers) allow single users to connect to the Internet using a computer, modem, and suitable software.

There are many different things to do on the Internet — sending mail, transferring files and accessing remote computers, for example — and each method has its own way of communicating. You require software that understands each type to use the service.

. Due to the origin of the Internet, most software uses a command–based interface. Termite Internet provides Acorn users with an easy–to–use interface of windows and icons to each protocol for the first time. Now anyone can use the Internet.


The main control panel

Termite Internet allows others on the Internet to get information from you too. For the technically minded, there are dæmons for: chargen, daytime, discard, echo, finger, http, ident, qotd, smtp, telnet and time

A PD version of our web browser, that reads files from disc only is available for 50p, so you can see what the World Wide Web looks like for yourself.

World Wide Web

The Internet has become popular with the general public because of a relatively new facility, grandly titled the World Wide Web, which Termite Internet of course allows you to use. From magazines or from the supplied hotlist, you can jump to any site on the Internet and view their web pages. To move to another page (which could be in another country) you just click on text that is highlighted in blue! It's that easy: you just point and click. Most of the world's major companies provide a WWW site so that you can see details on their products and services, but the main use is to gather information; it may surprise you to know that even the UK government has pages for you to view.



Communicating

Some people just want to use the Internet to communicate, and many such people enjoy the facilities of chatters and talkers on the Internet. One such facility is the Internet Relay Chat where there are 1000s of users online, in 100s of conference channels. You just pick a channel and you can start chatting!

As well as this, there are many bulletin boards on the Internet. It is like dialling up with your modem and using a bulletin board, except that Internet bulletin boards cost no more than the call to your Internet provider. These features are provided by the remote connection facility (telnet) in Termite Internet.

Another communications medium is electronic mail. You could e-mail a friend in the same town or even someone in another country! To make writing messages as easy as possible, one of Termite's supporting applications is Offlite. This is an off–line mail system, so that you can read and write your mail while you are not connected, reducing those all–important phone bills.

There is also public news, which allows people with the same interests to write messages in a forum. Offlite allows you to read these messages too, and you can choose which forums you want to receive from a list of over 13000! The interests are obviously varied, from Acorn computers to TV shows to current affairs.

Contacting us

You can contact DoggySoft by writing to Furzefield House, Furzefield Road, Beaconsfield, Bucks., HP6 6HP, or by e-mail to: sales@doggysft.demon.co.uk. Phone: (01494) 673222, fax: (01494) 675878, or dial our support BBS on: (01494) 681711.

RSDFS challenges ANSI with Multimedia BBS package

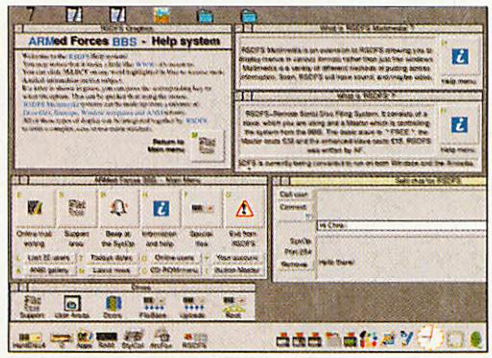
SINCE I last looked at Chris Claydon's Remote Disc Filing System RSDFS, it has improved considerably and the latest version incorporates a whole lot more than just file transfer.

RSDFS comes in two parts – a Master application running on the BBS computer and a Slave which runs on the user's machine. The user downloads the Slave which then dials up, connects and displays the multimedia and window-based features provided by RSDFS.

The drag-and-drop filer allows BBS disc drives to be accessed by users for up- and downloading from a second icon bar, and even allows items to be dragged from openable archives. The Sysop controls which directories are seen and which users have access. Full CD-ROM support is included, and file transfer speeds are creditable.

Helper applications running on the user's machine enable the graphical and sound functions. These include a split-window multi-user chat function, a sound sample player, and renderers for the window and graphics screens. Most interesting is Chris's online Hypertext help system which allows interactive Web-browser-style click-on links to other help windows.

Chris is working on a messagebase system to complete the BBS functionality, which should be ready now. Setting up RSDFS at the BBS end is relatively easy, as windows can be created with just a template editor and *Draw* files, as well as from conventional ANSI screens.



ARMed Forces BBS in action.

RSDFS is Shareware; the Master system costs £38 with free slaves, and an enhanced slave version costs £15. You can ring ARMed Forces BBS for a demo all day weekends or after 2.30pm weekdays, but check with Chris by voice first.

ARMed Forces Software
38 Main Road, Littleton, Winchester,
Hampshire, SO22 6QQ
Tel: (01962) 880591 voice/data

Stacks, sockets and FreeNet

SOMETHING exciting is happening for Acorn users and programmers in the field of Acorn Internet connectivity. Tom Hughes has produced a freeware replacement for the Acorn TCP/IP stack called *FreeNet*. But what on earth is a TCP/IP stack, and why is *FreeNet* so important?

Internet communication is achieved by simply passing packets of binary data between machines. The data contained in the packets can be anything, such as parts of e-mail messages, file transfer blocks, web pages, control data and so on.

The way this data is generated, interpreted and handled is determined by various protocols or rules that are arranged in layers, one on top of each other. Those at the top determine high-level exchanges like file transfers, while down at the bottom are the low-level details such as how individual bytes are sent though the hardware. These layers of protocols are called the TCP/IP stack.

The loved or hated *KA9Q* program has its own TCP/IP stack built-in, and offers most of the client processes we need, such as ftp, telnet, NNTP news and SMTP e-mail exchange. But to use a PD World Wide Web browser, we still need to run *KA9Q* to give *Webster* or *ArcWeb* access to the *KA9Q* stack, and this interconnection will only work in the Desktop environment.

What *FreeNet* does is provide these stacked protocols right down at system level as part of RISC OS, using a sockets interface that can easily be accessed by any client program written to do a specific job. A socket is a way of describing a software interface through which another program can send and receive data.

Internet users need not know anything about sockets and stacks, but *FreeNet* enables programmers to easily write code for new client processes that can even be ported from other platforms, and will also work with the Acorn Stack. *FreeNet* is being incorporated into the existing freeware Internet programs available from BBSs and ftp sites.

Other platforms, such as the Mac System 7.5 and Bill Gates' Windows 95 already have Internet connectivity built-in. Acorn can provide its own TCP/IP stack software, but it'll cost you 90-odd quid. *FreeNet* brings platform equality to Acorn RISC OS Internet users at no extra cost – and it's just in time.

Cheaper Optima

Hayes Microcomputer Products has reduced the Sysop Programme price of their 28,800 bps Optima modem to qualifying Sysops to £189 + VAT + carriage. The full V.34 product is now available as the Optima 288 V.34/V.FC + FAX, and Sysops owning the V.FC-only model are being contacted about the free upgrade to V.34.

Hayes Microcomputer Products Inc
Tel: (01252) 775577
Online: (01252) 775599

More Plasma

The Plasma Sphere BBS, located in Lymm, Cheshire for just on three years, now has a second phone line. Sysop Keith Hall tells me that TPS now offers V.34 on both lines and sports a new 500Mb IDE hard drive.

The Plasma Sphere BBS
Tel: (01925) 757920 or
(01925) 757921

HENSA on Demon

The Higher Education National Software Archive ftp site micros.hensa.ac.uk, has recently applied access restrictions that have affected many Acorn users, as HENSA was one of the main Internet sources of Acorn software and information. However, by special arrangement with Demon Internet, their ftp server now carries a partial mirror of the Acorn-dedicated part of the HENSA archive.

ftp: ftp.demon.co.uk/pub/mirrors/hensa

Faster Spuddy

Stephen Harris's affectionately-named Spuddy free Usenet and e-mail access system on Canvey Island now offers V.34 connections, and includes access to comp.sys.acorn newsgroups.

Spud's Xanadu
Tel: (01268) 515441

Contacting me

You can contact the Comms page by writing to David Dade, Acorn User, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: DaviD@arcade.demon.co.uk, or mail #2 on Arcade BBS 0181-654 2212.

DTP

Paperless publishing

THE Internet is here, as well we all know. It's hardly been out of the headlines for months and now a flurry of on-line authoring tools are bound to add fuel to the debate about on-line publishing.

Thanks to its recent publicity and the opening up of the World Wide Web to users of Compuserve and other managed services, there are a vast number of people who now have access to that well of all wisdom known as the Internet.

As a result, all manner of marketing and publishing companies see an opportunity to make big money selling you a whole new range of publications and services. The explosion in Internet-oriented magazines is proof enough of the interest shown in this brave new world of cyberspace.

The World Wide Web (WWW) uses a language called HTML to construct pages and link them together with all manner of things, including other WWW pages. HTML also allows you to include graphics and as such provides an excellent way of serving up information in digestible slices.

Designing, writing and publishing these pages is going to be one of the big growth industries of the next decade. A whole horde of tools for authoring HTML pages using everyday word processors like *Microsoft Word* are coming over the horizon, and there has also been a recent announcement that Adobe is working with the publishers of one of the most popular Web browsers, *Netscape Navigator*, to integrate its Acrobat software into a new generation of browsers.

On the Acorn platform, Ben Summers' HTML tools are a welcome means of creating HTML files using *Impression*. They are not the ultimate solution, because including things like pictures is still fiddly, but they do make authoring HTML pages much easier.

The paper-based publishing industry has currently little to fear from this new phenomenon. The extra load these graphics-intensive applications place on the Internet, along with the exponential growth in subscribers, means servers and comms links are pushed to their limits already and service is often pretty slow. Waiting five minutes for the graphics to appear on a page is never going to catch on. However, this bottleneck won't last forever and if the press is to be believed the market for these services is huge.

Since Acorn is taking bold steps into the new world of interactive on-line services via Online Media, it should make sense that at least some of this authoring could be done on an Acorn platform. Any takers?



Are paper-based publications to be made obsolete by the advent of interactive electronic media? Sample e-zines trawled from the WWW would suggest not yet – they're just not the same as reading good old ex-rainforest.

Standing ovation in the pipeline

ALAS, *Ovation Pro* appears to be suffering from the endemic malaise of the software industry. It's going to be late. Not very late, but late nonetheless.

The real issue is, will it be worth the wait? It already has a list of features longer than your arm and is awaiting the finishing touches before being let loose on the unsuspecting Acorn public.

As well as built-in line drawing facilities, irregular frames and rotated text, all the usual frame handling, image editing, style control, and text handling tools are there.

Ovation Pro will also feature a powerful built-in macro scripting language and fully customisable tool bars. Named colours and separations are fully supported, so spot colour work should be very straightforward.

Full process colour support is built in as is an OPI-style virtual memory manager for your images. Other useful touches include extensive undo and redo features, pasteboards, and curved frame borders with variable standoffs. *Ovation Pro* will be on display at the show and should certainly be worthy of appraisal.

Beebug
Tel: (01727) 840303
Fax: (01727) 860263

Really small print

Computer Concepts is set to launch a new set of *Turbo Drivers* at the *Acorn User* spring show. As well as enhanced support for colour remapping tables, support for a new range of Canon printers is also on the cards.

Canon is releasing three new models: the BJC-70 (a portable version of the BJC-4000) and improved versions of the BJ-200 and BJC-600. Each now offers 720dpi monochrome printing and the BJC-70 also offers full CMYK printing for those on the move.

Canon has yet to release a 720dpi colour bubblejet to see off the challenge of the Epson Stylus Color, although it's widely expected that a new 720dpi colour printer will be with us before the end of the year.

Computer Concepts
Tel: (01442) 63933
Fax: (01442) 231632

A Postscript to PostScript

A wild and unconfirmed rumour is circulating in the Acorn publishing field that Acorn is working on a replacement for the current PostScript printer driver. The current driver isn't without its critics. A whole host of minor problems frequently create major headaches for anyone trying to do any serious work with them. If the rumour is true, a collective sigh of relief will be issued by all concerned, assuming of course that the replacement won't suffer from the same schizophrenic tendencies.

As reported on the Customer Hotline page, Acorn has recently updated its printer driver software to version 1.28c.

Contacting me

You can contact the DTP page by writing to me, Steve Powell, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: stevep@acornusr .demon.co.uk.

Showroom open Mon-Sat 10-18.00 hrs (All prices exclude VAT) Carriage included except where indicated

CD-ROM



All the following CD-ROM drives are PhotoCD compatible and include a driver for CDFS =>2.20

Internal Drives

2x Speed SCSI (Tray) 300ms	£149
4.4x Speed SCSI (Tray) 140ms	£249
4.4x Speed SCSI (Caddy) 135ms	£289

Suitable for RiscPC. SCSI interface not included.

Cumana CD300i IDE (Tray)	£199

External CD-ROM Drives

2x Speed SCSI (Tray) 300ms	£199
4.4x Speed SCSI (Tray) 140ms	£319
4.4x Speed SCSI (Caddy) 135ms	£379

SCSI interface not included. Add extra £25 for A3000.

SCSI cards

Morley uncached SCSI card	£130
Morley cached SCSI card	£169
Cumana SCSI II card	£169

The above cards are suitable for A300, A400, A3000 (Ext), A540, A5000 and RiscPC. For others see MultiPodules. Add £25+VAT to Cumana SCSI II card for external cable.

Hard Discs

New Lower Prices

IDE Bare Drives		SCSI Bare Drives	
270Mb 14ms	£129	270Mb 12ms	£139
420Mb 14ms	£139	540Mb 12ms	£179
540Mb 12ms	£149	730Mb 12ms	£239
		1Gb 12ms	£Call

Above are 3½" bare drives only. Please add the relavent accessories from below. Drives are Connor or Quantum. ForA3000/A3010 hard discs see Hard Card section below.

Syquest Removable Hard Drives

IDE Bare Drives		SCSI Bare Drives	
270Mb Syquest	£259	105Mb Syquest	£189
		270Mb Syquest	£289
SCSI External Drives			
105Mb Syquest	£249	270Mb Syquest	£329
Syquest Cartridges			
105Mb Cartridge	£43	270Mb Cartridge	£49

Hard Disc Interfaces/Accessories

50-50C SCSI Cable	£10	25-50 SCSI Cable	£10
SCSI II-50 Cable	£25	SCSI Terminator	£10
5¼-3½ open adapt	£10	5¼-3½ HD adaptor	£12
IDE Accessories		**SCSI Interfaces**	
IDE interface	£79	Morley UnCached	£130
2nd Hard Drive Kit	£15	Morley Cached	£169
External case/PSU	£79	Cumana SCSI II	£169

TopicArt

See us at the Harrogate Show Stand 120

Single disc clipart containing approx. 50 high quality draw format clip art images, each on a single subject. Comes with mono reference sheet. 12 subjects are available now. Please specify when ordering. Site licences are £16+VAT per disc, please ring for further details.



TopicArt9 - Dinosaurs

Subjects avail.
1 - General
2 - Transport
3 - Costumes
4 - Entertainment
5 - Bugs 2 Slugs
6 - Road Signs
7 - Sports Equip
8 - Sports Figures
9 - Dinosaurs
10 - Symbols
11 - Tools
12 - AnimalsGB

£8 + VAT per disc

TopicArt catalogue now available. £1.50 Inc VAT & p+p (cheques only)

Buy 4 TopicArt discs get one free
not incl SpecialArt



TopicArt12 - AnimalsGB



TopicArt4 Entertainment

SpecialArt (Xmas or Signs) £20+VAT (each)

Special editions of TopicArt consisting of a minimum of 4 discs full of clipart





QuickTile v1.02 £25+VAT



Up until now it has only been possible to print posters from Draw & Sprite files. Now with QuickTile you can create posters from ANY RISCOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references. RiscPC compatible.
Requires RISCOS 3.10 or later.
Return Disc with SAE for upgrade.
Upgrade from Tiler for £15+VAT.

DIY Ink Jet Refills

Single Refills (req an orig cartr.)	£7
Twin Refills (Black only)	£12
125ml / 400ml Cleaning Kit	£4 / £10

Available in Black, Cyan, Magenta, Yellow, Red, Green, Blue, Brown

Please specify colour(s) required when ordering.These do-it-yourself refills can be used with any printer where the head and ink reservoir are combined, ie, DJ-500, BJ10/200. Please do not send empty cartridges. Please note that colour quality may not be 100% from a black cartridge refilled with another colour. We cannot guarantee against dried up empty cartridges and/or blocked nozzles.

QuickSound £10

Load, play, convert & resave Armadeus, Tracker and raw data sound samples. Apply special effects including Reverse, Echo, Max Vol, alter replay rate and resample frequency. Convert samples into modules for use with the RISCOS sound system. Create stand alone Utility mod's.

QuickShow £10

Slide show presentation and video titling package. Create sequences of frames containing text of any colour with drop shadows, outline shadows and rubout boxes using the RISCOS fonts. Sprites can also be included in frames, positioned and resized as necessary. Screens can be linked together with the sequencer with fades in and out.

Mail Order - 0161-474 0778 (All prices exclude VAT) Carriage included except where indicated

Risc PC — Acorn

All RiscPC's include 1yr on-site maintenance.
Low finance available. The following prices do not apply to finance, ring for details.
We operate Acorn Assist for teachers & academics.
All RiscPC systems are now in stock.

2MHD210 + AKF60	£1199
2MHD210 + AKF85	£1475
5MHD210 + AKF60	£1299
5MHD210 + AKF85	£1575
9MHD420 + AKF60	£1599
9MHD420 + AKF85	£1875
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The above CD-ROM prices include Morley uncached SCSI card. The above prices only apply when purchased with a RiscPC system.

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Free CD-ROM Drive with every A4000	
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Above are ONLY available with a system.

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- The above modem bundles include a cable, - phone splitter, ArcTerm7 and ArcFAX.	
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See also top of page for other hard discs
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Swift24 Mono/Colour Ribbon	£7/£15

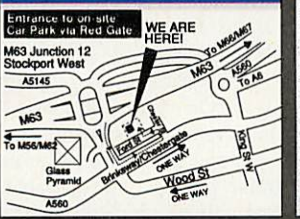
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Acorn RISCOS3 PRM's	£99.00
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Add £2 Carr to above (£4 for Acorn books)	

Terms

EC residents add 17.5% VAT to all prices except books. Carriage free in UK (excluding remote areas) (except books), elsewhere at cost. Orders MUST be accompanied by a phone number. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Restocking fee on non-faulty returns. Official orders welcome from educational institutes, chq with order under £30. E&OE.

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Access VISA SWITCH

Public Domain

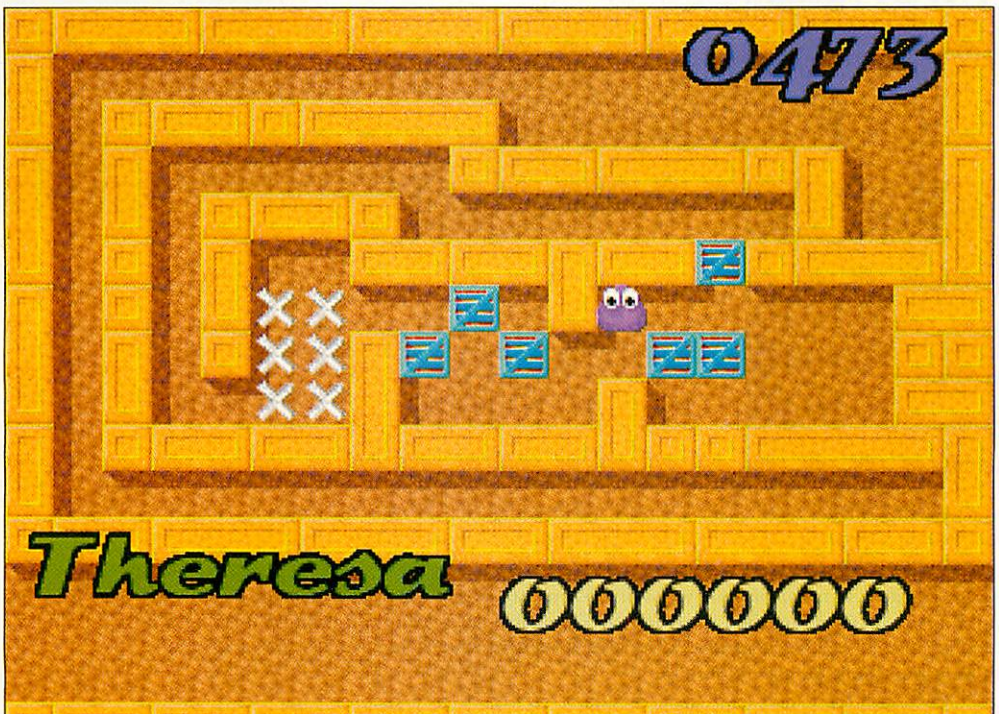
Pushy, Racer and StuntEd

AFTER originally seeing a great little strategy-type puzzle game at the Acorn World show last year, I was beginning to think I'd never obtain a copy for review, as I'd failed to get a contact address from the author. Fortunately, I recently encountered a copy on a new games disc from Five Star, which is packed with some great new Public Domain software.

Pushy is one of those incredible little games that looks pretty boring the first time you play, but on the second time round you really do get hooked. It all comes down to just pushing a few little blocks around the screen, but I really couldn't put it down until I'd completed all 25 levels. The author, Fred Williams, describes *Pushy* as a kids' game, and I'd tend to agree that some of the levels are a bit too easy, but it still comes highly recommended to fans of any kind of puzzle games. It's also great to see some nice presentation in a PD game of this kind – keep up the good work, Fred!

Racer is an arcade game on the same Five Star disc that is also worth a look. Working either as a single player or split screen head-to-head game, *Racer* gives you an overhead view of the racetrack as you try and skid your little ray-traced buggy round the course. *Racer* is Shareware, and this cut down Freeware version has only one of the multiple tracks and cars available in the registered version. It can become a little boring in one-player mode, but with two players it's a great laugh.

Both games, along with a handy *Stunt Racer* cheat program, are available on Game disc GA059 from Five Star Marketing or on the Digital Databank BBS games area.



The *Pushy* challenge – can you put the blocks onto the crosses?

MacHFS

FOR years, RISC OS has been able to seamlessly use discs from not just the Archimedes range, but also from the PC and Atari. Recently there have been several commercial programs released which enable you to use Mac discs in the same manner, but at a price. If, however, you only need to be able to load data from Macintosh high density discs, then *MacHFS* will enable you to do this via a filer-like interface.

In use it shows both the files on the disc and information about the disc – Mac discs have a resource fork and a data fork. Things like text and graphics are found in the data fork and templates in the resource fork. It is possible to save files in either the data or resource fork to a disc or application, the only limitation being the slow speed. A 520K TIFF file took three and a half minutes to transfer on a Risc PC! Future updates to *MacHFS* should enable it to both format and write to Mac discs.

MacHFS is on disc U35 from Five Star Marketing and in the Digital Databank Utils area.

Mike Enderby

Headfirst into trouble

Unfortunately, yet another small PD library is closing down, as proprietor Gareth Boden does not have the time to keep Headfirst PD running. Gareth is currently on the look out for someone to take over the running of the library. Interested parties should contact Gareth at 45 Cedar Street, Southport, England PR8 6NQ or by e-mail to gdb20@cam.ac.uk.

Fortunately, Gareth is still continuing the development of his excellent *TrueANSI* gfx editor. New features include a complete click and draw palette, and the ability to sketch while dragging the mouse pointer. A lot of the BBSs out there could really do with some graphical improvement, so I hope *TrueANSI* makes an impression.

TrueANSI is Shareware, and comes highly recommended for only £10 from the address above.

Mass of programs

As *Acorn User*'s PD editor I'm continually on the look out for new and interesting PD to feature in this column. This usually comes from a wide range of sources – everything from PD libraries or the authors themselves to the Internet or bulletin boards. After a relatively quiet few months, I've found myself with a mound of discs for review. I hope this present trend continues, although the important thing is quality not quantity. But as the programs on this page show, attention to detail and real competition with the commercial world is still there. The PD column will continue to highlight and support this kind of excellent software.

Contacting me

You can contact the PD page by writing to me, Paul Wheatley, at Acorn User, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP. By e-mail to quantum@digibank.demon.co.uk or online on them Arcade BBS.

Business

The new DataPower

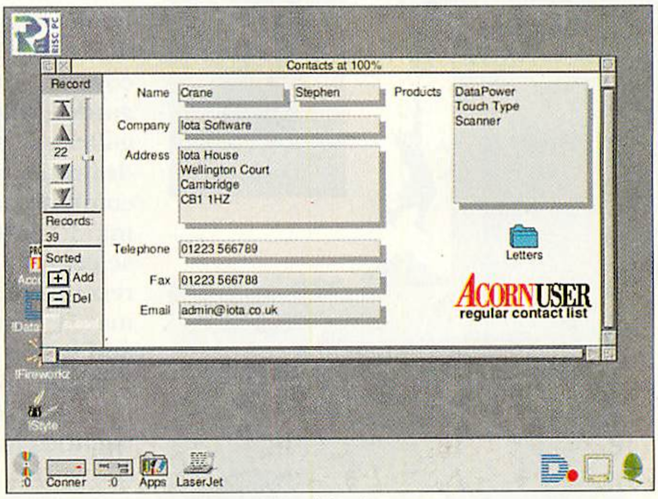
IOTA Software is to radically enhance its popular database, *DataPower*, with full relational facilities and the capability to read material from an Optical Mark Reader (OMR).

OMR is a method of reading pencil marks from a sheet of card or paper. A light beam is directed on to the surface of the paper or card and reflected up to a light sensor. Less light is reflected back where a pencil mark is present, and this information will be able to be passed directly into *DataPower*.

By the time you read this, an OMR software supplement should be available for existing users, though at the time of writing it is not known how much it will cost.

Iota recommends that customers purchase readers from DRS, which has a substantial market share in OMR technology. DRS will also be able to supply a package comprising of a reader and *DataPower* together.

Iota should have the relational version of *DataPower* on sale around September and the price will probably remain the same at £149, with upgrades for existing users.



DataPower is soon to be a relational database.

Iota Software
Tel: (01223) 566789
Fax: (01223) 566788
E-mail: info@iota.co.uk

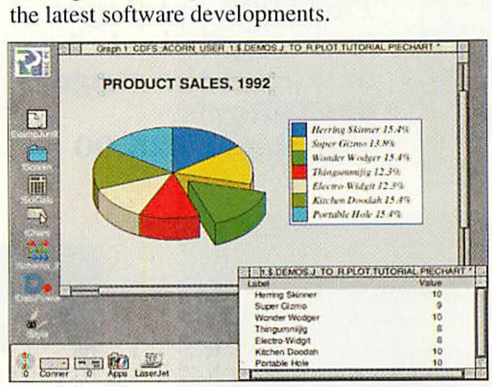
Stunning software to be won

TO win some useful and valuable software, simply work out the puzzle below and send your answers to Clares Micro Supplies, 98 Middlewich Road, Northwich, Cheshire CW9 7DA. All the correct entries will be put in a box and three picked out at random.

The first winner will receive *Schema 2*, an extraordinarily powerful spreadsheet package with built-in graphing. It is certainly the spreadsheet for tekkies as it is fully programmable – for example, you can totally redesign the button bar. Features include compatibility with *Lotus 123* WK1 files, graphs with live linking to data and a large set of standard functions.

Second prize is *Plot* – an advanced graphing package. Robin Watts (*AU* Jan 1994) summed it up with, 'I love this program – it does everything I could think of, and more.'

Third prize is *Knowledge Organiser 2*. In short, it's a package for keeping e-mail, research notes, or nearly anything else you could possibly think of in perfect order. All entries must arrive at Clares by 10th June, 1995. The judge's decision is final and no correspondence will be entered into. Clares may add entrants to their mailing list so they can be kept up-to-date with the latest software developments.



Plot, one of the first-class prizes generously donated by Clares.

Puzzling times

Mark, Jonathan, Steve, Bob and Bill all visited the *Acorn User* Spring Show and purchased one program for their computers. The software packages bought were: *Plot*, *ProArtisan 2*, *Schema*, *Elite* and *Knowledge Organiser*. The computers owned were a Risc PC, Electron, A5000, A4 and A3010. From the clues below, deduce what computer each person had and what software they bought.

- Steve worked on trains.
- Bill didn't have many bits.
- Bob had an expensive machine with a CD-ROM drive.
- Mark needed to keep his information in order at the same time as doing professional photo-retouching.
- Jonathan didn't use *Prophet* or *Enterprise* for his accounts.

Tip of the month

Don't buy a PC for Gantt charts. While playing with the April issue's CD-ROM, I noticed a package called *Plot* (see bottom left). Because of its ability to display rotated graphs, it will allow data to be exported from ACP's *Project*ING and *real* Gantt charts to be produced easily. *Project*ING requires a 'form file' to be written (this tells it what to export) which I am presently working on for my own use. I will be explaining how to set this up in a future issue.

Advanced Computer Products
Tel: (01276) 472046

What are relational databases?

Computing magazines often give references to 'relational' databases (such as *ImpactPro* or *S-Base*). As the word often baffles people, I'm going to explain what they are and why you might want to use them.

If you have two or more databases where the information in them overlaps, then it is useful for them to be 'related'. That is to say that the information in one record is linked to the other.

For example, Joe Customer's address is in two databases. Let's say that one database contains customers and one Acorn A4 users. He's just moved house. If the databases are 'related', adjusting his address in one will automatically update the other.

Almanac successor

Advanced Computer Products, publishers of the popular *Enterprise* accounting package, is to develop a Personal Information Manager. Import and export with the Pocket Book and the *Enterprise* range are being considered.

Contacting me

You can contact the Business page by writing to me, Alex Singleton, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: alex@acornusr.demon.co.uk.

Education

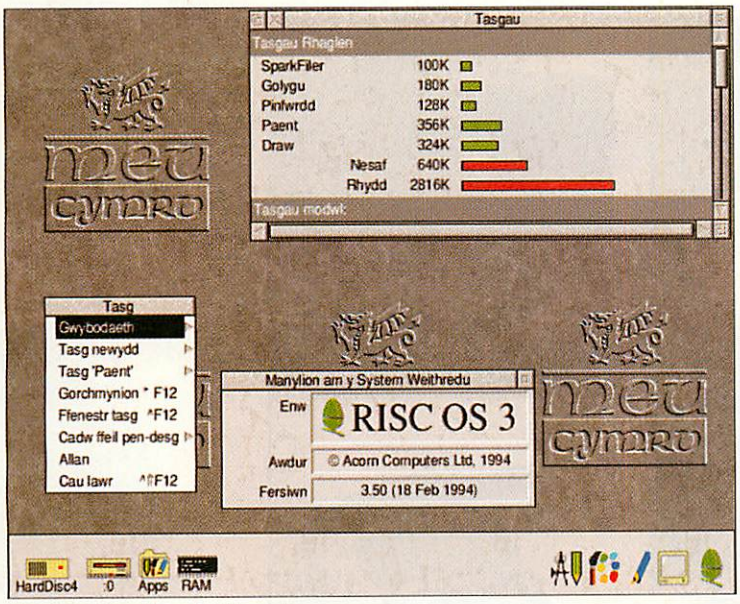
Welsh Arc revisited

JAMIE Finch from Newport in Gwent wants to know if he can use his Archimedes to help him learn Welsh. The short answer is yes. I mentioned some new products by MEU Cymru (Microelectronics in Education Unit for Wales) very briefly in the February issue, including Welsh fonts and Illuminated Capitals. MEU also produces translations for a great many Acorn programs including *Advance*, *Magpie*, *Style / Publisher*, *Folio*, *Artisan*, *Pendown* and *Genesis*. These programs function as normal, but all menus, error messages and prompts are in Welsh. When teaching languages, the modern thinking is to 'completely immerse the student in the target language.'

MEU's latest translation is for the computer itself and was developed in collaboration with Acorn. The text on the Desktop is now available in Welsh so that when you click Menu on a disc drive icon, the menu appears in Welsh. I gather all the OS commands are also in Welsh which basically means you end up with a Welsh computer.

MEU also produces and markets its own software, as well as software from others like Wyddfa. These include programs designed to help speak and read Welsh.

MEU Cymru
Tel: (01443) 841790/1



The RISC OS Desktop, Welsh-style

More rabbit

SHERSTON'S Talking Stories are popping up all over the place and the latest is *Talking Animated Alphabet*. This is not an upgrade from an existing product but a completely new pack costing £29.95, with site licences extra and a CD-ROM version planned for later in the year.

There are three different activities based on visual letter discrimination (*Odd One Out*), aural letter discrimination (*I Spy...*) and letter recognition, each of which is fully configurable by the teacher.

This program is sure to capture the attention of little ones who are learning the alphabet and as with all Sherston software, the pack includes more than just a disc.

This pack includes 26 full-colour folded A4 sheets on... guess what, some record sheets and the manual. *Talking Animated Alphabet*, together with the *Look Hear!* topics, also by Sherston, would be an excellent cornerstone on which to build a learning resource area for Key Stage 1/2 pupils.

Put it on an Access network and you'll really have a powerful resource.

Sherston Software
Tel: (01666) 840433

✱INFO for learning support

AN interesting letter arrived recently from Myles Pilling, the IT Co-ordinator at Rainbow School in Bromham, Bedfordshire. Myles writes: 'I have been using the graphics programs (from ✱INFO) that have been distributed in *Acorn User* to enable my pupils who have visual impairment and learning difficulties to stimulate the optic nerve and develop eye-tracking and attention skills.' He goes on to say how he uses the programs with *Tracker* modules to add sound and accesses the programs via a touch screen.

I don't suppose the people who wrote the programs had that in mind, but it is encouraging that someone has found a serious use for them. Perhaps the authors of these programs might like to bear this in mind, and should feel proud that their programs are used in this way.

Misleading info?

Gerry Daish of Longman Logotron has asked me to clarify a couple of points arising from the Education page in the March issue regarding *WinLogo*.

To upgrade *WinLogo* to a bug-free version is, of course, free. The cost of *WinLogo* is £69 and the site licence upgrade from the old version of *Logo* to *WinLogo* is also £69.

Longman Logotron
Tel: (01223) 425558
Fax: (01223) 425359

Class register

On this month's cover disc is a demo version of *Marks Register* by GC Williams. This demo is a fully-working version but limited to 12 students in three classes. Students can be sorted alphabetically, and rank order and marks can be printed or exported into another package that accepts CSV files. The latter will enable reports to be generated.

A full version of the program is available from Electrotec Distributors Ltd, PO Box 4195, Hamilton, New Zealand. If you want to order by phone or fax it's 0064 7 856 8920.

History and IT

The *Acorn User* team of expert educational writers continues to expand, with two new people joining this issue.

Welcome to Fred Luzanycia and Colin Field who outline some good IT practice in the History classroomin the article on page 61 in the education section.

On the cover disc – in addition to the demo version of *Marks Register* – are some resources which may be used to reproduce the same module, or used as a starting point in developing your own. I'm always interested to hear of any examples of quality lessons like this, which may be shared with others.

Contacting me

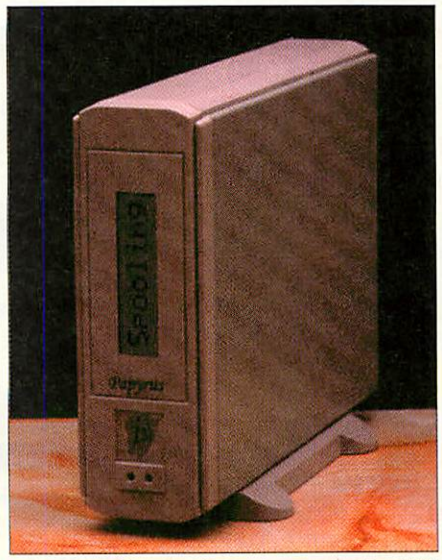
You can contact the Education page by writing to me, Geoff Preston at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to GPreston@arcade.demon.co.uk.

Network printing gets better

ONE of the main benefits of a network is sharing resources. Rather than everyone having a cheap printer, provide one or two really good printers and then let everyone have access to it. It sounds good in theory, but in practice network printing to direct-drive laser printers has caused several headaches. The first piece of software to attempt to tackle this problem was *ClassPLD* by Oak Solutions which worked fairly well for most of the time, but occasionally hiccoughed and either misprinted the page or crashed. Sometimes it did both and crashed the client machine into the bargain. Doubtful compatibility with RISC OS 3 and apparently total lack of compatibility with the Risc PC finally sealed its end.

Next on the scene was (and is) Atomwide's *NetPrint*. This is a clever solution which works very well, although it is slightly quirky. You can only print by dragging the file icon onto the *NetPrint* icon. The Print key on the keyboard and the print options within applications are redundant. This program is fine until you want to print pages five and six of a twelve-page *Impression* document – possible but quite a challenge. The nice feature about *NetPrint* is the fact that you can control who prints what, and how much of it they print. In these times of tightening budgets, not to mention ecology, anything that saves paper is worth having.

The long awaited *Turbo Spooler* from Computer Concepts has finally arrived (apparently coinciding with CC's decision to stop producing direct drive printer kits). I have been beta-testing it since last November and have watched it gradually mature into the program everyone was hoping it would be. Not only does it spool to a laser direct printer, but also any of CC's Bubblejet Turbo drivers. This means you can have a colour printer and a laser printer on the same printer-dedicated computer. As good as this program is, there is one drawback that the previous two don't have. Both *ClassPLD* and *NetPrint* use their own client end, but *Turbo Spooler* uses *Printers* as the client end and this takes a long time to load over the network. *Printers* is made up of lots of small files and modules and is definitely not network efficient.



At last, a serious printer server for AUN.

Some would argue that direct-drive laser printers are not suitable for the network and so will look towards more conventional laser printing. SJ Research now has its own laser printer spooler for 'standard' or Postscript laser printers. Again, the drawback with this product is that the client requires *Printers*. This is an efficient solution which I would have taken if I was not already equipped with direct-drive printers. But it may be possible to run a direct-drive printer from the parallel port.

A parallel lead and a printer definition file from Oak Solutions maybe all that is required to convert a direct-drive printer to a parallel printer. However, the printer will need about 2Mb of memory to print an A4 page of text at 300dpi. If 4Mb was available you could print some pretty good graphics too. Canon LPB4 printers can be upgraded with Canon's own memory cards; the newer LPB4i uses SIMMs.

All of these are software solutions and come on a disc, but i-cubed has taken an alternative route and has developed a hardware solution. Called *Papyrus*, this looks to be expensive but in reality is quite cheap because the spooler doesn't require a computer or screen. The spooler, which contains between 2Mb and 16Mb of RAM and a hard disc of up to 2Gb, plugs straight into the network. A printer (or printers) is then plugged into *Papyrus*. It will accept any type of printer including Postscript and direct-drive laser printers. If you've got an old dot matrix printer, you can even plug that into it. The client loads *Printers* and prints in the usual way and *Papyrus* sorts it out. When you consider that all the software solutions require a fairly good dedicated computer (e.g. 4Mb usually, a hard disc definitely and ARM3 ideally) for £700 for the basic model which replaces the spooler computer, *Papyrus* is not expensive.

Computer Concepts (01442) 63933
Atomwide (01689) 838852
i-cubed (01223) 566113



Some say the network driver for LaserDirect is not suitable for the network. CC is no longer producing LaserDirect printers, so it's no longer an issue.

Contacting me

You can contact the Network page by writing to me, Geoff Preston at Acorn User, IDG Media Ltd, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to : gpreston@arcade.demon.co.uk

Cover disc

Flux

Author: Peter Knight

FLUX is a psychedelic, fast-moving graphics demo which provides pulsating bursts of colour that dance across the screen in time to music in a soundtracker file. The soundtracker format which originated on the Amiga has become one of the standards for music on the Archimedes – it is used for the music in most games. PD libraries and bulletin boards tend to have vast stocks of sound tracker files just waiting for someone to play them.

Although there are many programs around to play back these files, until now the vital visual element has been somewhat lacking. Some, like *Acorn User*'s *QTM*, didn't bother displaying anything at all, concentrating upon playback of the music. Others produced oscilloscope displays, piano keyboards and VU meters in an effort to jazz things up a bit. By taking over the whole screen, *Flux* manages to generate a fast-scrolling cloud of colours that could have stepped straight off the backdrop for *The Word*.

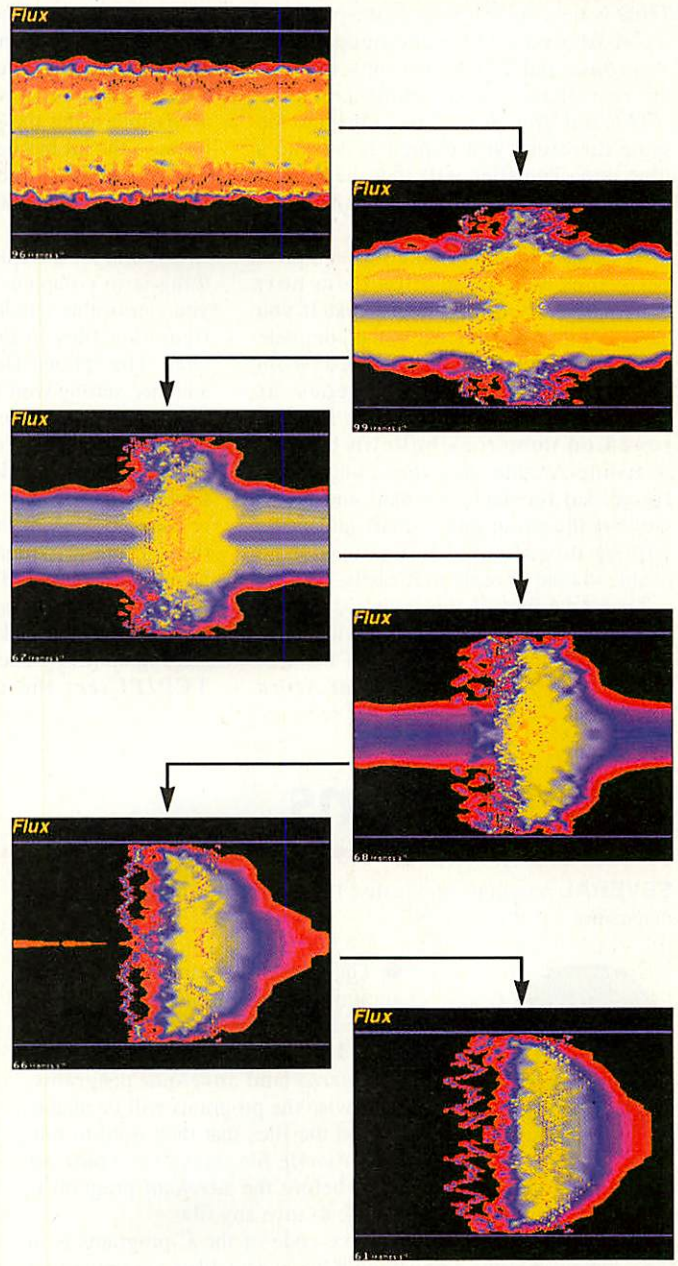
The effect is a bit hard to describe really, and screenshots don't really do it justice either because the really impressive feature of the program is the way in which the colours pulse and change in time to the music. In describing the smell of Ankh-Morpork, the author Terry Pratchett exhorted readers to visualise a chameleon, sitting on tartan and lit by strobe lighting. *Flux* has the same sort of feel – the best thing to do is to run it and watch.

When run, *Flux* installs itself on the icon bar. To bring up the display, drag a soundtracker file to its icon – *Flux* does not claim the soundtracker filetype for itself, so you cannot simply double click on the file. There is a soundtracker file provided on the disc with *Flux* – *AURave*, by Stuart Malcolm – which provides an excellent pulsing beat to show *Flux* off to the best of its ability.

Once *Flux* is running – and colours are cascading across your screen – there are a number of keys which will control the appearance of the display. The Space bar randomises all the settings, and completely changes the display's appearance. The '0' (zero) key changes the palette, cycling through a number of equally garish colour ranges. The 'Q' to 'T', 'A' to 'G' and 'Z' to 'C' rows of keys alter three different aspects of the display; the best way to see this is to experiment. In particular, swapping between the various 'A' to 'G' settings can produce a nice effect as one pattern morphs into the next.

Flux will only recognise soundtracker files in either *Digital Symphony* or *QTM*-compatible formats, although this is not much of a limitation as PD programs exist to convert between the various formats. It certainly showcases the speed that graphics can be made to run on the Archimedes; it runs at a respectable speed on an ARM2 and flies along at up to 100fps on an ARM600 Risc PC.

Flux requires RISC OS 3.1 or greater and 2Mb of RAM to run. It may be possible to run it in 1Mb, but it's not recommended.



Disc problems?

OUR cover discs are tested thoroughly at every stage of production, but one or two faulty discs may slip through. If you suspect that you have a faulty disc, check whether it verifies by choosing 'Verify' from the menu produced from the floppy disc icon on the icon bar.



If the disc does *not* verify, then it is physically faulty and should be returned to TIB, TIB House, 11 Edward Street, Bradford, Yorkshire BD4 7BH, who will replace the disc free of charge. Note that this address has changed recently.

If it does verify and there is some other problem with the disc, contact the editorial office at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or telephone (01625) 878888.

While we do test all the programs on the cover disc, we are unable to try them on all possible combinations of computer, hardware and software. We try to support RISC OS 2, but much of the software written for the disc does require RISC OS 3.1 or above, as software writers are switching to the new operating system. Do let us know of any problems.

The *Acorn User* cover disc has been checked for viruses using *Killer* version 1.902 from Pineapple Software.

Internet starter kit part 3

Compiled by Alan Hassey

THIS issue's contribution to the pack is a set of files needed for the operation of *NewsBase* and *TTFN*. To copy them to the rest of the pack, simply copy the *!TTFN* and *!NewsBase* directories into the same directory you copied last issue's files into. The files will then be copied into the correct places within the applications.

NewsBase and *TTFN* are not complete yet – they will need files from next issue's disc before they will work. If you have an Internet connection, the complete programs can be downloaded from ftp.demon.co.uk/pub/archimedes as described in the last issue. They are also stored on numerous bulletin boards, including Arcade. *NewsBase* and *TTFN* are needed for reading e-mail and news; without the programs, e-mail and news will be downloaded but you will be unable to read or reply to it easily.

To use the files on this issue's disc, you will need the files from the previous two issues. The entire pack was on the CD-ROM on the April 1995 issue of *Acorn User*. Although Demon is the most common way for Archimedes users to access the Internet, any Internet provider offering a SLIP connection should be accessible using the starter kit. However, because the kit has been specially tailored to offer easy connection to Demon, a number of things will need changing:

DemConfig: this is set up to configure everything for a Demon account. The best thing is to complete your details as best you can in this window and edit the configuration files in the various programs later. The 'phone Demon to get your IP address' setting won't work, of course.

SlipDial: will need you to edit the *Scripts.demon* file to replace the phone numbers, or it will simply call one of the Demon lines. It may need more extensive revision to work, if the logon protocols of the service provider are different from Demon's. You may find it easier to use a terminal emulator such as *Zansi*, *Hearsay* or *ArcTerm 7* to make the initial contact, starting up *KA9Q* once you are logged on.

TCP*IPUser*: the *Config*, *AutoExec*, *AutoTempl* and *Domain* files will all need to be edited to alter any references ending '.demon.co.uk'.

TTFN and *NewsBase*: The configuration options of *NewsBase* and possibly *TTFN* may need changing to reflect the different news gateway on the other Internet provider.

Note that for Internet providers such as CIX, which provide an ANSI terminal front-end to the Internet rather than a full SLIP connection, the Internet starter kit is not suitable to connect to them. Instead you will need a terminal emulator such as *Zansi*, *Hearsay* or *ArcTerm 7* – accessing these providers has much in common with accessing a bulletin board.

Because Demon has recently changed its 'first contact' login sequence, the 'phone Demon to get IP address' script will not work if you do not have a password set. The solution is to either log on using a terminal emulator or to get Demon to set your password by phone, and change it once logged in. A replacement script is being prepared.

Article tie-ins

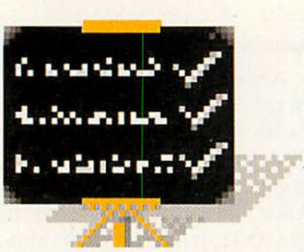
Various authors

SEVERAL programs on the disc tie in directly with articles in the magazine:



● The *C* archive contains programs accompanying Stephen Mumford's tutorial. It is important to run the *!RunMe* file before running the *readarray* and *saveload* programs, otherwise the programs will be unable to find the files that they need to run. The *!RunMe* file should be copied out of its archive onto another disc before the *saveload* program is run, or the program may be unable to save any files.

As usual, the text for the source code of the C programs is in the *c* directory in the archive, with the executable code in the root directory.

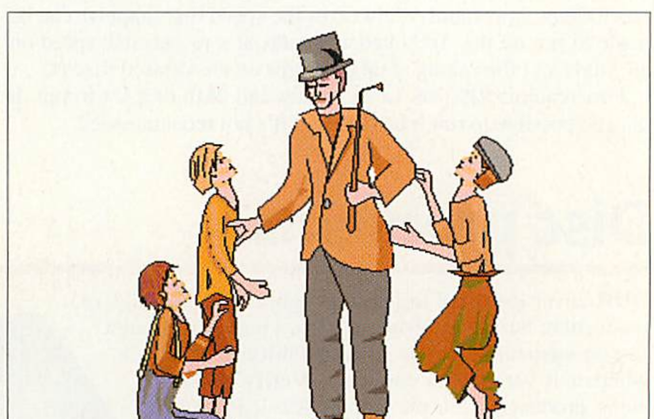


● The *Education* archive contains three directories.

The *History* directory contains documents in *Impression* format and work sheets in *Draw* format. *A5Report* is an A5 booklet for the students to word process a report. Spaces are provided for text and graphics. *HandReport* is a sheet which may be printed out as is and given to students to hand write a report. Alternatively, the file could be given to students to word process a report. *WorkSheet* contains four *Draw* files which make up a four page A4 booklet (i.e. one A3 sheet folded in half) which is given to students to complete. It includes some instructions and spaces to record their results.

The *MarkSheet* directory contains a demo of the *Marks* software to keep a tally of students' marks. The demo version is limited to 12 students in three classes – a sample database is included. The full version of the software is available from: Electrotec Distributors Ltd., PO Box 4195, Hamilton, New Zealand, tel: +64 7 856 8920, fax: +64 7 856 8920.

The *Ultima* directory contains an example file created by the multimedia authoring package *Ultima*, giving a small presentation on the Victorians. This accompanies the article on *Ultima* in the education section of the magazine.





● The *StarInfo* archive on the disc contains all the programs in the *INFO section of the magazine. Among other programs this month is a computer version of the playground game 'tig' which we at *Acorn User* fully expect to become a cult of the same scale as *Tetris*. Probably



Perfect **printing**

With Acorn moving into the DTP market, Jack Kreindler explains what a repro house is, and looks at the most Acorn-biased one of them all – TJ Reproductions.

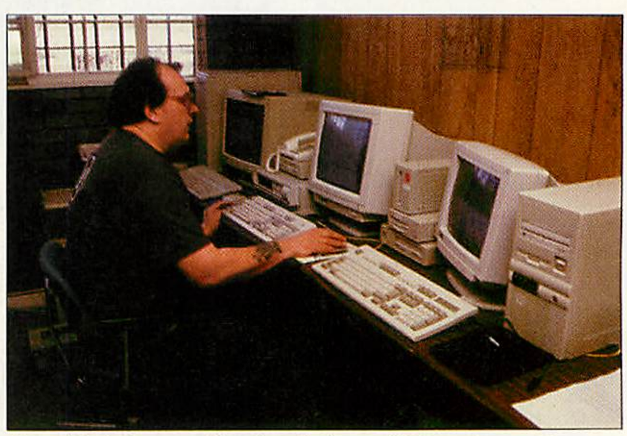
'What is Reproduction?' is a question I thought I knew the answer to 18 months back. It's a question which, even after that amount of time working with those in the industry, I can only understand in layman's terms. So, very much in the vein of a domestic engineer's guide to rocket science, here is what 'Repro' was and is about.

The origins of reproduction began with Hot-metal and Composition techniques; trays stuffed full of meticulously arranged little blocks of mirror lettering, created for each page of text to be printed, or 'reproduced'. It was only in the late '50s and early '60s that this ancient method of preparing text became 'computerised.' When we say computerised, we are talking about tape-based storage and processing units which the average digital watch would put shame to nowadays. Still, typing text into a computer and having your letter press plates constructed for you was cutting-edge stuff 40 years ago.

The computer take-over bid

At the same time as the computerisation of letterpress template construction – and everything else under the sun for that matter – the industry of traditional repro emerged and with it Offset Printing, a technology which remains alive and strong to this day. Offset printing requires the images for printing to be exposed onto plates through film. These plates can be made of any solid, pliable material, though aluminium is the preferred substrate because of its high endurance (in the printing press) and low cost.

Plates are made in a four-stage process, each stage representing an individual skill or trade within the repro industry. Originally, the industry was defined as the operations involved in making the designer's or writer's material ready to be printed, and the four trades which this industry encompassed were typesetting, paste-up artistry, camera operation and film planning. Typesetting was the first computerised stage and invariably used machines known as photo typesetting devices. These megalithic computer-driven devices transferred inputted text onto bromide paper. Essentially they operated by firing light from a strobe mechanism through letter stencils in the phototypesetting machine to expose areas on the bromide paper. The bromides, once developed, were put through the other three stages – they were cut, pasted, masked, photographed and developed, sometimes as negative film, sometimes positive. Eventually, the images would find their way onto the



The multi-platform workbench at the heart of TJ Repro's operations.



TJ Reproductions' offices in London.

photosensitive aluminium plates by exposing the emulsion on the plate to ultraviolet light through the film mask. The plate could then be printed.

To fully explain the details of all the stages of traditional reproduction, a few thousand words would never do, but things have changed greatly since just five years ago. The whole business of emulsion-up/emulsion-down, negative/positive, colour-separated, masked and planned film-production for plate making was revolutionised by micro computing technology at the end of the last decade.

Since then, the four stages of traditional reproduction have all become the job of the computer, connected directly to a film-producing 'imagesetting' machine. However, the skills which have sadly (in my opinion) been lost to the malignancy of computerisation have spurred the development of new skills in advanced computer operation. What has evolved is the all-in-one repro man (or woman). One such repro man is Tony Tolver. His repro house, called TJ Reproductions is at the cutting edge of the industry and, unusually for high-end bureaux, TJ Repro has its roots planted firmly in Acorn ground.

An Acorn repro house

There are not all that many Acorn repro houses around and anyone who has attempted to get a file outputted to film (imageset) to be made into plates and printed from *ArtWorks*, *Impression*, *Draw*, *Ovation* or whatever will know the problems that can occur. TJ Reproductions is unique in that it not only supports the Acorn platform but actually uses the computers out of preference. To quote Tony: 'Some people swear by Macs. We swear at them.'

Tony is the founder and very much the driving force behind TJ Reproductions, having taken it from being a small platemaking service using a Linoterm phototypesetter five years ago to the success it stands as today.

The company benefits from the wealth of experience Tony has acquired from his days working and training in traditional repro. Tony was originally a platemaker, camera operator and finally a typesetter before jumping onto the fast moving computer publishing bandwagon in the dying moments of the '80s. He says that his experience gained in the platemaking industry coupled with a thorough knowledge of film – partly from college and from a hobby in photography – has helped in getting the quality as near to perfection as possible.

For a printing firm to phone up and say that the film TJ produced was 'pretty damn good' is a compliment indeed. Many bureaux, Tony explains, have evolved from typesetters who are either missing vital genes associated with computer knowhow, or have failed to keep up with the momentum of technological advance, and hence do not understand the importance of consistent, high quality film output. TJ actually uses a little thing called a film densitometer (beep, goes the spell checker), a piece of kit used daily to monitor the consistency of the film by measuring the density of the black dots. Coupled with a Level II PostScript Imagesetter, which allows each dot percentage to be individually altered, this means that a 50.00 per cent tint (or 50 per cent black, in monochrome printing) can be accurately modified to within plus or minus 0.25 per cent. This may seem like overkill, Tony says, but for quality work this degree of control matters greatly.



Land Mobile magazine arrives at TJ Reproductions on an unusual storage medium – an A4 portable.

Knowledge of the platform

Tony's knowledge of the Acorn platform is second to none. TJ is a beta-test site for a number of software houses in both the Acorn and PC markets. Computer Concepts and TJ Reproductions have a symbiotic relationship as far as publishing and repro goes. Tony is most complimentary to the *Impression* team at CC who have been extremely quick to mend bugs which Tony, in his constant use of the *Impression* Publishing system, has discovered over the years. Not only this, but TJ has also benefited from CC's willingness to increase the functionality of its applications.

It is refreshing, says Tony, that a company is prepared to react so readily to suggestions, as the American giants dominating the Mac and PC publishing software usually deny that bugs exist, or otherwise try to convince you that your system is set up in an inappropriate manner. 'Our next release will cure that problem, sir,' is something that Tony has heard too many times from the bigger companies. It seems rather arrogant of the forces that be, seeing as they are selling what are essentially faulty goods.

Tony's support for Acorn computers is partly due to earlier struggles to find a bureau who could typeset files produced on his Acorn. In fact, he says that his discontent with the industry either asking whether the Acorn was a PC compatible or just drawing a total blank, forced him to buy an imagesetter himself and offer this service to other long-suffering users. Despite being clad with Mac and PC equipment today, TJ started off with just an A540, the other equipment followed in order to support a growing influx of foreign file formats alien to the Acorn platform.

Frustration with the lack of speed on the Mac and its tendency to crash a considerable number of times, together with the fact that the machines were three times the price of an Acorn back then, led the Acorn to become the main machine of the business. Despite this, there was great pressure to fall into the grip of the industry standard, but Tony decided to buy his A540 with a 600x600dpi direct drive laser

printer for the grand total of £5000. Incidentally, the Mac alternative was priced at a wallet-wrenching £13,000. For most of the work TJ was doing then, the Acorn was also considerably faster and produced better camera-ready-copy from the laser printer, (to be photographed and made into film). Financially and logically, the Acorn was the only choice.

Problems with the Mac

This sums up TJ's ethos perfectly; use the right tools to do the job. At present, for the purpose of DTP – other than for the highest-end publications that require scans over 30Mb in size – Tony believes that the Acorn platform outperforms a PowerPC by a factor of about three to one for real-world tasks. The Macs also have a slower user interface; while it is more advanced than the Acorn in some ways, the one-button mouse and a less multi-tasking operating system can cause things to become as slow as pouring cold treacle, on occasion.

TJ is currently running three Macs; two Quadras and a 136Mb Power Mac used for image manipulation, two Risc PCs (40Mb a piece), a 32Mb 100Mhz DX4 PC and a trusty A540 which has lost its pride of place at the core of TJ Reproductions, but is now an invaluable secretarial and supplementary design terminal, and which houses the TJ Faxpack. The all-important scanning equipment consists of a Nikon slide scanner, a couple of high resolution flatbeds, and a drum scanner. TJ supports almost every kind of storage medium in existence, with 44/88Mb and 270Mb Syquest drives, Magneto Opticals and Flopticals linked up to the fully networked system.

As far as software goes, Tony says that despite the industry's love affair with *Quark XPress*, *Impression* has so many features that *Quark* lacks that he feels *Impression* is a far better product overall. *Impression* may lack a few features but at least it does what it does well, and more importantly, it does it with more speed and reliability and for less outlay. *Quark* cannot separate RGB files, has no control over printer screen angles or colour separations, has a zoom range limited to 400 per cent and 'greeks' lettering left, right and centre – not fitting for an industry standard package. Tony is greatly looking forward to *Ovation II* which promises to have the page-setting capabilities of *Quark* which *Impression* lacks.

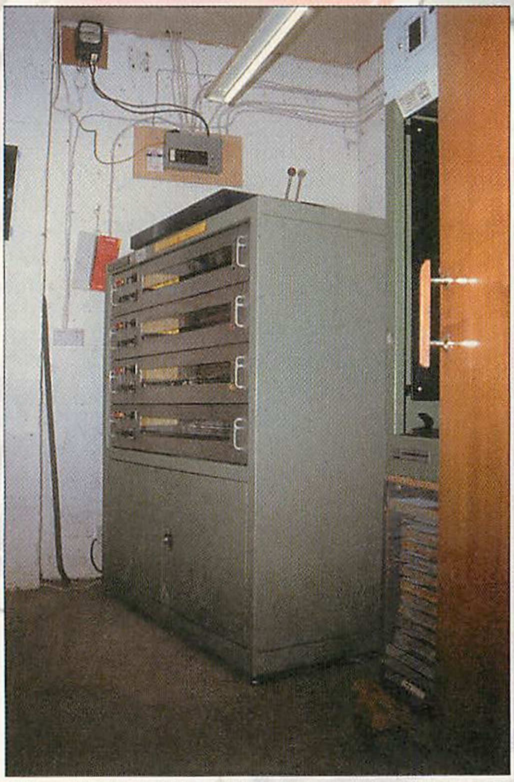
Other problems with the Mac include its awkward font management system, the way in which *Quark* doesn't carry around image files in documents and its poor memory management which essentially requires twice the amount of memory for a given task than the Acorn needs. However, the Mac has its strong points, and working basically as peripherals to the Acorn, TJ's Macs are used for scanning and image manipulation in *Photoshop*.


The original trusty A540 is still used in secretarial and supplementary design work, and houses the TJ Repro Faxpack.

Although Tony can foresee the day when the Acorn will become the key tool for scanning and photoretouching, as it has done for graphic design, DTP and writing to PostScript, presently the bigger scanning devices are unsupported by the Acorn platform. The Macs are also used to drive the imagesetters as the dedicated NuBus accelerator cards are Mac-only affairs.

Lower-end customers

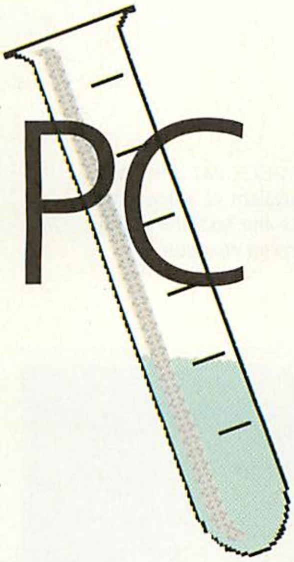
The other unique aspect of TJ Repro is the way in which it targets its services towards the lower-end user as well as the professional designer or company. Despite offering drumscanning, chromalin proofing and, soon, dye-sublimation proofing facilities, TJ also deals with a number of amateur designers, schools and home users who like the flexibility of being able to send their files on a disc – perhaps with a collection of photos – and end up with the whole job finished, with a speed usually reserved for professional design houses. The lower-end market accounts for a growing proportion of TJ's throughput, and this is entirely due to the nature of the Acorn platform. As many others have discovered, the Acorn is easily the fastest and most efficient platform for non-specialist design and publishing, and it is this that enables TJ to cater for the lower, less lucrative end of the market with ease.


TJ Repro's chromalin machine, for producing high-quality colour proofs.

Tony wants to encourage more schools to use their Acorn equipment for production of magazines, newsletters and prospectuses, as opposed to leaving the education to the Acorn and dedicating publishing to other platforms, like the PC. It is something that many schools could do and would speed up the productivity of publishing and possibly open up the opportunity for children to contribute and gain experience in the field of DTP at an early stage in education.

At the higher-end, TJ produces film for the 48-page monthly magazine, *Land Mobile* (10,000 readership) and does reproduction for over 12 big Acorn third parties for magazine adverts and brochures. The fact that a company with access to almost limitless resources spends 95 per cent of its working hours using Acorn equipment is of great credit to the platform, but Tony remains cautious about Acorn's future in the industry because, if such a powerful platform has not yet made a dent on the American giants, then interest in developing the platform further could fade. Tony feels that this would not only be a great shame, but a great mistake as the capabilities and potential of the Acorn platform are second to none.

TJ Reproductions can be contacted on 0171-372 4430, or fax 0171-772 0515. AU



PC Card Labs Test

Clem Vogler looks at Acorn's Risc PC card in use, and compares it to other Acorn PC solutions.

Whenever my father-in-law comes to stay, he hands me a sheaf of computer magazines he's bought to read on the train. 'You're into computing', he says. 'Have a look at these'. Every one is a PC magazine. My father-in-law hasn't sussed out the difference, yet.

Now, he won't have to. Acorn has made a Faustian bargain and, from a high place, Mephistopheles has revealed Gemini – the codename for the Risc PC's 486 dual processor card. To render temptation irresistible, behold: total integration; all your peripherals – printer, modem, CD-ROM drive and the like – accessible to either platform; cross-platform file handling.

Acorn is practically giving the cards away to Risc PC owners at £99 + VAT. Acorn's loss is your gain. So now, you too can become a PC bore, rattling on about AUTOEXEC.BAT and WIN.INI.

Tuning your system

To get the best out of the PC card you need to tune your system. Some of this is explained in the handbook and release notes accompanying the software, and some is part of an arcane mystery known only to PC buffs. Here's what you do.

A utility called *PCConfig* is supplied with the 486 card. With this you can create a hard disc partition, thus splitting your hard disc into a RISC OS area and a PC area (the latter being a file that you create using *PCConfig*. Choosing the size of the partition you need requires an assessment of your relative intended use of the PC and RISC OS; Windows applications tend to be disc hungry, so you'll want at least 100Mb, and probably more. You can create up to two partitions on any RISC OS filing system that you want: however, you are limited to two such drives at any one time.

The user guide explains how to install the application PC486 and the module *DOSFS*. The latter allows you to see and manipulate (but not run) the files inside your PC partition from within RISC OS. The less said about early versions of *DOSFS* the better: just make sure you're using version 0.49 or later, as earlier versions had a number of tiresome restrictions. Importantly, the size restriction of 32Mb on PC partitions has been removed, so you can now create partitions large enough to run memory-hungry windows, up to the limit of 512Mb imposed by RISC OS on its filing systems.

Memory management

Memory management is not fully dynamic: you have to dedicate part of your Risc PC's RAM to PC use. Allocation is restricted to chunks of 1Mb, which makes sense when you think that a normal PC has memory in multiples of 1Mb, so if you enter 3500K you will actually allocate 3Mb. Naturally, you recover it when you quit *PC486*, whereupon, if you like, you can configure a different allocation for next time. The general rule is to save 2Mb for RISC OS to run itself and the PC card software, and give the PC the rest, especially if you plan to run Windows (see the box on page 40 covering Windows' memory requirements). If you want to multi-task, you'll obviously need to leave the RISC OS side enough RAM for whatever you want to run.

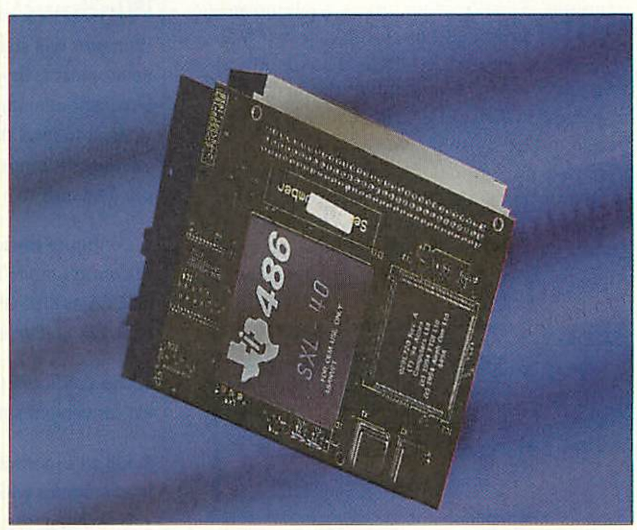
You also have to allocate screen memory to the PC. This may seem surprising, since a feature of the Risc PC is its dedicated screen memory in VRAM. Of course, the VRAM continues to maintain the actual screen image, but a separate allocation of standard RAM is needed to retain the PC window (which, when multi-tasking, may be obscured by other things, but still needs to be recoverable). You work out the amount of RAM to allocate by choosing a PC display mode and checking on how much memory the equivalent RISC OS mode uses. So, suppose you want to use SVGA in 256 colours; SVGA is 800x600 pixels, which takes up 472K of screen memory in RISC OS. Acorn advises adding on 25 per cent to speed up bitmap saving operations, so in this case you'd configure about 600K to screen memory.

PCConfig inserts these various settings into a text file inside *PC* called *Config*. It's perfectly all right to edit the text file instead of using *PCConfig*, and you'll find it gives you access to a number of other parameters such as secondary cache size, as well as some further advice on appropriate settings.

PC DOS or MS-DOS?

The PC card comes supplied with IBM's PC DOS, but not with Windows. You may use MS-DOS instead of PC DOS if you wish, and in any case you need a version of DOS as a base for running Windows. The versions of Windows you can use with the PC card are Windows 3.1 and Windows for Workgroups 3.1 or 3.11. Windows for Workgroups is essential for networking, but also satisfactory in single-user mode. In fact, Windows for Workgroups won't network until Aleph One produces the network driver

Software drivers are supplied for



The 486 dual-processor card.

CD-ROM drives, the mouse and the screen under Windows. You may not need the mouse driver as Windows loads one of its own, but it's useful for DOS. The Windows driver supplied by Aleph One has undergone a prolonged evolution and, in its latest incarnation as ARMDRV.DRV, is impressive. As well as accomplishing rapid implementation of graphics calls by using the ARM processor to act as a PC graphics card, it enables deployment of a full range of screen modes and refresh rates up to 256 colours, with full 24-bit colour (16 million colours) promised in the near future.

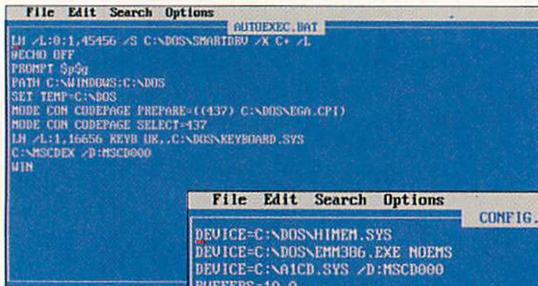
How fast is it?

It is possible to run both the 3.1 versions in standard mode, by typing *win/s* at the DOS prompt – standard mode being a cut down version of Windows originally intended for use with 286 processors. Because it's cut down, some applications run faster. Windows for Workgroups 3.11 doesn't have a standard mode, though in a single user environment you can release some memory by running it with networking disabled by typing *win/n*. Instead of SMARTDrive (see box on caches and swap files), Windows for Workgroups uses a superior disc cacheing utility called *Vcache*, which gives better benchmark figures for disc access.

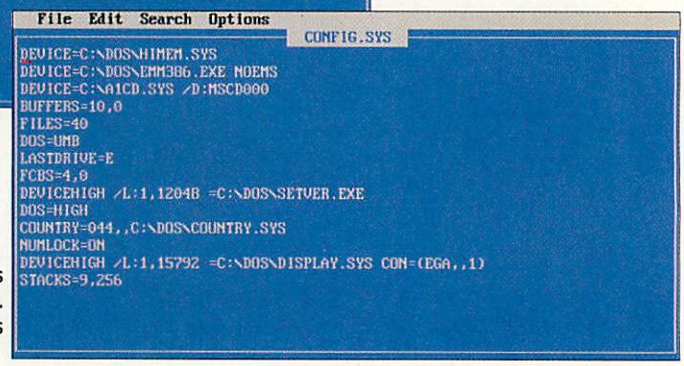
Benchmark tests have come in for a certain amount of criticism, mostly from manufacturers whose products do badly! It's sometimes alleged that they subject the system to unrealistic tasks, or, more seriously, that the benchmarking tests interfere with the benchmark software's internal timing. The benchmark results are shown in a separate box.

I actually think the *Windows User* benchmarks fairly represent performance, but even this is not infallible. It's especially interesting with non-standard PCs, such as Acorn's card or Apple's *SoftWindows* software PC emulation. For example, *SoftWindows* gives a phenomenally fast graphics benchmark, but if you sit down with a stopwatch, it takes about five times faster to complete the task than a normal 486 PC – essentially, the benchmark is lying.

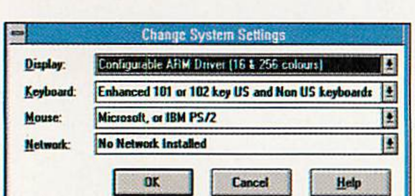
However, I ran a comprehensive series of timings using two widely used real Windows applications: *WordPerfect* and *QuickBooks*. My normalised average timings for a range of loading, scrolling,



AUTOEXEC.BAT is the DOS equivalent of a Boot file. Note the last line which starts up Windows.



CONFIG.SYS is a pre-boot file. It loads various device drivers.



ARM Windows driver installed in Windows.

sorting and searching operations on three platforms confirm the *Windows User* Benchmarks, which show the card to be as fast as a low-end 486 machine in use. This is exactly what Acorn aimed the PC card to do: to run applications at 486 speeds, and to cost less than £100.

Podule vs co-processor

The PC card is a great improvement on Aleph One's original podule card. In general it runs Windows applications nearly twice as fast. Aleph One worked miracles with the podule card, but nothing they did could overcome the crippling limitation of the podule's 8-bit bus connection.

Compared to an off-the-shelf PC, the PC card performs like an uncached 25MHz 486SX. This might seem surprising since the card's processor is a cached 33MHz 486SXL. Also fitted to the card is the ASIC (Application Specific Integrated Circuit) which has been specially designed to interface the 486 to the Risc PC bus. The problem with ASIC (and other chip) design is that you don't know exactly how it will perform until you try it, by which time the layout has been etched in silicon and can't be changed.

Of course, you rarely get it perfect first time. When operating with Gemini revision one, the 66MHz Intel 486DX2 processor was found to give insufficient performance increase over the 33MHz part to justify its much greater cost. Future Gemini revisions will have better cacheing with more advanced processors, and/or a new ASIC, to restore the price/performance figure.

If you've been running PC software on a podule card, the second processor is luxury. Your software runs twice as fast, and you don't have to double up expensive memory, but can allocate however much main board RAM you can spare. You still won't have anywhere to install PC expansion cards, though an ISA bus adapter is under development at

Windows' memory requirements

Windows will start up in as little as 3Mb RAM, but applications do not run well in such a restricted environment; they tend to run slowly, with frequent disc accessing, and may even lock up. 4Mb is a realistic minimum allocation, with 8Mb or 12Mb necessary for some major Windows applications. It follows that a 5Mb Risc PC is barely adequate for running Windows (though quite adequate for most DOS applications). If you must run Windows on a 5Mb Risc PC, reduce the memory demands to a minimum by taking the following steps:

1. Configure the lowest memory VGA screen mode (mode 27) by entering x640y480c16 in *PCConfig*'s mode box. There is nothing to be gained from using a memory-saving mode under RISC OS as RISC OS screen memory is allocated from separate VRAM. In *PCConfig*, set PC memory to 3072K and video memory to 180K.

2. Use *Configure* (double-click on *!Boot*) to set RMAsize, FontCache and FontCacheLimit to the lowest convenient settings. CD-ROM buffer can be reduced too.

3. Kill all superfluous applications. Better still, avoid loading them in the first place, as they may load modules which remain in memory when the parent application is removed. If you know what you're doing, use *RMKill to remove any unwanted modules.

Caches and Swap-files

A cache is an area of memory specially set aside for the processor to store frequently-used routines. The most immediate cache (8K big) is located on the 486 chip itself, so the processor can access it very rapidly. You can also configure a secondary external cache of either 32K or 128K in RAM. This cache is larger, but not accessed so quickly. The processor uses it to store a larger set of less frequently-used routines. By default, *PCConfig* selects the largest secondary cache.

When you install DOS, a utility called *SMARTDrive* creates a disc cache. This is quite different from the processor cache just described and is an area of memory which caches information that has been read from or written to disc. Typing *smartdrv/s* in MS-DOS will reveal the size of cache for DOS and for Windows, and whether it is operating on disc-writes as well as disc-reads.

If you have 6Mb+ of PC memory, 2Mb of SMARTDrive cache is advisable, but if your PC memory is less you should reduce SMARTDrive cache to 1024K or 512K for DOS and 128K for Windows. In extreme cases, do without SMARTDrive altogether, deleting references to it in AUTOEXEC.BAT and CONFIG.SYS.

Swap-space is the reverse of disc cache. It is space on the hard disc used as virtual memory, providing space for files which are too large to fit in RAM. Naturally, using virtual memory is slower than using RAM. Compared to RISC OS, which doesn't use virtual memory, you'll notice a lot of disc activity with Windows. This is why it's important to have a fast hard disc.

From Windows, click on the Control Panel, then 386 Enhanced, then Virtual Memory, then Change. This gives you the option to select 32-bit file access (only with version 3.11) and change the amount of swap space on your hard disc and allocate it permanently. Permanent allocation reserves an unfragmented block of disc sectors and results in faster accesses. For the same reason you should periodically defragment your partition by running *DeFrag* from DOS, backing up your hard disc first.

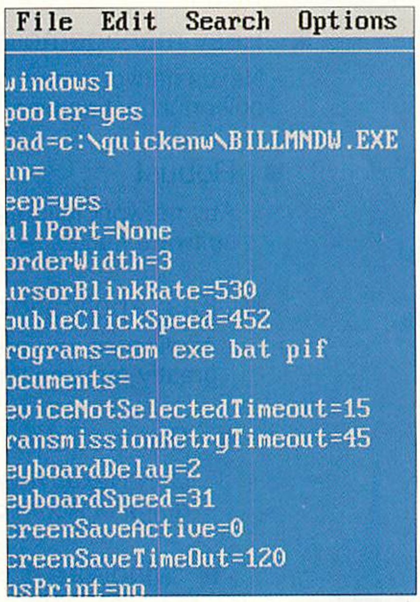
In RISC OS, of course, you never need to de-fragment your hard disc, another example of the differences between Acorns and PCs.

Atomwide. Gemini is much cheaper than the podule card and, of course, it leaves you an extra podule slot free as well.

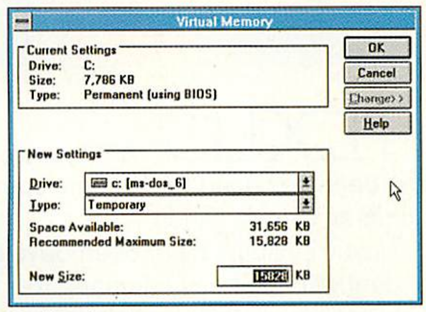
Conclusion

As with RISC technology, Acorn has again beaten Apple to the draw. Acorn took the right decision and took the dual processor option. Apple went for software emulation on the PowerPC, a choice it has now abandoned in favour of a second processor. Apple uses separate memory so that whichever Operating System mode you're in, half your RAM is sitting idle: this is exactly the same design Aleph One has been using for years.

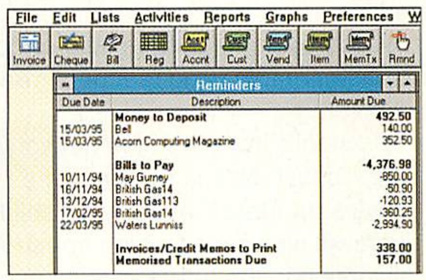
Acorn's dual processor design benefits from the obvious economy of shared memory. This is one reason why Apple's second processor costs so much more than Acorn's. In commercial terms, the Acorn PC card provides a competent, if modestly-paced PC platform for a pocket money price. Don't hesitate to buy one. AU



Part of WIN.INI, the Windows initiation file. All these text files can be displayed in a text editor like DOS's *Edit*, or can be edited by a RISC OS editor like *Zap*.



Configuring swap space.



Windows accounting software running on a Risc PC.

Benchmark tests

The larger the number, the faster the benchmark was performed.

Machine	Podule card	Podule card	Risc PC 486	Risc PC 486	Risc PC 486	Typical**	Packard Bell
Processor	486SLC/50	486SLC/25	486SXL33	486SXL33	486SXL33	486SX25	486DX33
Resolution	SVGA	SVGA	VGA	SVGA	SVGA	VGA	VGA
Colours	16	16	16	16	256	16	16
Processor	8	5	5	5	5	7	9.5
Memory	5	5	5	5	5	8	8.4
Graphics	4	4	8	7	5	6	15.4
Disc access	5	4	7*	7*	7*	5	12
Windows	5	4	7	7	6	6	8.4
Overall	5	4	6	6	5	6	10.5

* Figures using SMARTDrive. Acorn reports benchmarks of 9 using *Vcache*.

** Average benchmark figures for three off-the-shelf machines with same processor.

SVGA = 800x600 pixels. VGA = 640x480 pixels.

MAJOR PRODUCT LAUNCH!

They say "Two into one doesn't go." Or does it?

Cumana are launching a combined CD-ROM drive and optical disc drive for Acorn Archimedes computers. The performance is staggering. The CD-ROM drive offers quad speed and 195ms access time and the optical disc drive provides a massive 650Mb of re-usable storage. Operation is simplicity itself, just place the CD-ROM disc or rewritable optical disc into the tray and click the appropriate icon on the bar.

APPLICATIONS

- Use as a superfast CD-ROM drive in its own right!
- Use rewritable optical disc as supplement to hard disc.
- Ideal for archiving and project work where optical disc can be removed and stored for future use.



COMPATIBILITY

- Any Archimedes computer fitted with a Cumana SCSI interface & CDFS 2.21. (A range of 8, 16 & 32 bit interfaces are available from Cumana).
- Ideally suited to Acorn computers fitted with 4Mb RAM and a hard disc.
- Internal version available for the Risc PC; external unit available for other computers.

PRICE & AVAILABILITY

- Drives from under £500! 650Mb optical discs available at under £40!!!
- Available May 1995 from Cumana and supporting dealers



For more information on this exciting new development, or to reserve your copy of Cumana's new Portfolio (8th edition), please contact:

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Surrey GU3 3BH

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Facsimile 01483 451371



An awfully big cover disc

The April issue of the magazine had a CD-ROM on the cover. David Matthewman, who compiled the disc, explains how it was done and gives tips for anyone else contemplating the same exercise.

We decided to mount a CD-ROM on the front cover of *Acorn User* around 10 January. In order to get it in the shops by the last week in March, the gold disc was needed on 2 March. This left seven weeks to assemble the equivalent of 600 cover discs – not the easiest of tasks.

Right from the start I was determined to get a wide range of software on the disc. With 500Mb to play with, there was no excuse for producing a disc which did not have something that would appeal to everyone. Ideas were thrown around the office, the BETT show and the comp.sys.acorn newsgroup as to what I could put on the disc: HTML versions of *Acorn User*, locked software, very large demos, 'snapshots' of newsgroups from the Internet, compendiums of past cover discs, various ftp sites, a second 'audio' track on the disc. Some of these made it to the CD-ROM, while others fell by the wayside, for various reasons. Fairly rapidly, the software began to fall into four main groups: magazine-related, demos of commercial software, Internet-related and 'public domain'.

Help from the Internet

By far the greatest encouragement and support I received when doing the CD-ROM came from the denizens of the comp.sys.acorn newsgroup on the Internet. Much of the software originated there as well. I put out a general plea for help in late January which generated well over 100 replies, some containing software, others giving me permission to use existing software. I cannot thank these people enough; without them, the CD-ROM would have been much sparser.

Receiving software by e-mail and downloading it from ftp sites on the Internet does not come free. Even at local call rates, I probably spent upwards of £100 with my 14,400 connection to Demon buzzing away. Anyone contemplating doing the same would do well to find a friend with a fast (and free) University connection and a removable hard disc.

One of the problems of compiling a CD-ROM of this nature is getting permission to use software. Very little on the Archimedes is truly public domain, and the licence for most software – usually to be found in the *!Help* file – usually prevents automatic distribution by magazine cover disc. The fact that a software author has uploaded his or her software to an ftp site or a bulletin board is certainly not enough to imply that the author will allow a magazine to use it on a cover disc – although most will if asked. Besides, it's only polite.

E-mail is a great help here, as most PD authors have e-mail addresses; this is the cheapest and quickest way of contacting a large group of people. Many authors not only said yes, but provided updated versions of their software.

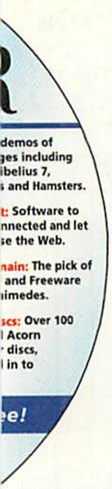
Collating the data

Early on in the process, I realised the 410Mb hard disc in my Risc PC would not be equal to the task of collating around 500Mb of data. Not only that, but having assembled the software, I needed a further 500Mb area of hard disc to create a CD-ROM image. A 1Gb hard disc was duly bought, and split into two 500Mb partitions (called Wallace and Gromit). The software was assembled on one partition, and the CD-ROM image created on the other.

Creating and testing the CD-ROM image was accomplished using the *CD Simulator* pack from Eesox. This includes Acorn's *ISOForm* formatter for the ISO



The *Acorn User* gold disc, about to be cut on Eesox's CDR machine.



9660 standard for CD-ROMs. *ISOForm* will take a file, or an area of a disc, and format it as if it were a CD-ROM. It will then take all the files in a particular directory and write them to the file, creating a portion of disc which has the same directory structure and file-naming conventions as a CD-ROM.

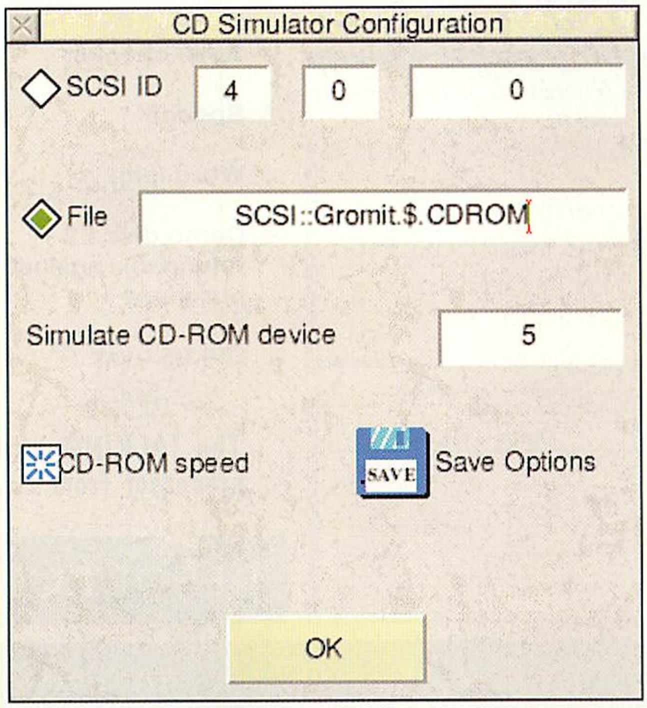
ISOForm will warn about any files which violate the ISO 9660 standard. These include files nested more than eight directories deep, and files containing illegal characters. The ISO standard severely restricts what a filename may contain. For instance, all filenames are upper case – as ADFS is not case-sensitive, this is not a problem – but more severely, they may not contain the '!' character.

Keen observers will notice that this plays havoc with application names, and also files with names like *!Run*, *!Sprites*, *!RunImage* and so on. CDFS – the Acorn CD-ROM filing system – is thankfully ahead of the game here. Any directory or file on the CD-ROM starting with an underscore '_' character has the underscore replaced by a '!'. This means that *!Run* is actually translated as *_RUN* by *ISOForm*, and translated back by CDFS. This is totally transparent, unless you try to read the CD-ROM on a non-Acorn system.

Eesox's *CD Simulator* software allows you to use the partition created by *ISOForm* as if it were a CD-ROM. This is vital for testing that the software will work. It uses CDFS to access the files – the partition appears as a CD-ROM drive on your icon bar – and will optionally simulate the slower access time for a CD-ROM drive. Compiling the CD-ROM without this piece of software would simply not have been an option. All the final testing was performed using it, and in this way I could be as sure as possible that the finished disc was going to work.

Cutting the disc

On 1 March, I took the hard disc containing all the data for the CD-ROM to Eesox, who had kindly agreed to cut the gold disc for us. The gold disc is the first master; a write-once CD-ROM containing the data from which the master is cut. Writing a CD-ROM is a hairy affair and requires an uninterrupted stream of data at a controlled and constant rate. Many hard drives pause briefly every 20 minutes or so to re-calibrate, which is very bad news if you are trying to get an uninterrupted stream of data from them at the time. Eesox uses a Philips CDD 521 CD Recorder connected to a specially selected hard disc drive, which doesn't re-calibrate in this way.



CD Simulator from Eesox will allow you to test a CD-ROM image on your hard disc. Any changes can be made easily, which is obviously not the case with a gold disc.

Cutting the gold disc took just over 20 minutes, after which I had a shiny CD-ROM to take away and test. This was the point of no return; while it is possible (but costly) to get new gold discs cut, once the gold disc has been sent off for mastering the data on it is fixed.

The cost of getting CD-ROMs mass-produced varies considerably, depending upon how many are being produced and who you ask to do it. By shopping around, it should be possible to produce a run of reasonable size for well under £1 per disc. For very small runs, just getting a couple of gold discs made might be more cost-effective. AU

Points to remember

Filenames: the ISO 9660 standard for CD-ROMs is much more fussy about filenames than ADFS is. Programs which use a specific file containing an illegal character will need to be re-written if they are to run direct from the CD-ROM.

One way round this is to archive everything using *ArcFS* or *SparkFS*, as files within the archive can use familiar ADFS names. Unfortunately, some programs will not run from archives, and de-archiving the software may take up precious memory, so this is not an ideal solution.

The ISO standard – like ADFS – supports filenames of up to 10 characters. Unfortunately DOS does not, which means if you want your CD-ROM to be readable on a DOS-based system you should keep all file and directory names to under eight characters.

Virus checking: on a read-only medium like a CD-ROM this is vital. It's also time-consuming – virus-checking the *Acorn User* CD-ROM took over four hours and that was on the hard disc.

Time to open a directory: this is greatly increased if you have a large number of applications in one directory, because the computer will run the *!Boot* files of each one independently. This can leave the computer sitting with the hourglass running for ten or 20 seconds, which should obviously be avoided. One method is to put *all* the application sprites in the first application's *!Sprites* file, but it is usually better to break your directory structure up so that you never run into this problem.

Creating the image: don't re-create the full CD-ROM image using *ISOForm* everytime you add data, as this can take up to half an hour for a large, complicated image. Instead, maintain two directories: *Finished* and *Pending*. Use the *Finished* directory for tested programs and files and the *Pending* directory for new stuff. Regularly create images for testing from the *Pending* directory (which should be small) and then move the tested files to the *Finished* directory. Periodically create a 'master' CD-ROM image from the *Finished* directory and test it thoroughly, which wil take longer but only needs to be done infrequently.

Product details

Product: CD Simulator
Supplier: Eesox
Tel: (01223) 264242
Price: £149 + VAT

Product: Single gold CD-ROM
Supplier: Eesox
Price £60 + VAT (£30 per extra copy)
(Eesox will supply a £30 voucher towards the cost of a gold disc if you buy an Eesox CD-ROM drive)

Sublime colour

The Fargo Primera colour printer brings affordable dye sublimation printing to the Acorn market. David Matthewman took it for a test drive.

The advantages of dye sublimation printing over – for example – inkjet printing were discussed on the Graphics and DTP pages of *Acorn User* last issue. Briefly, a 200dpi dye sub printer will print 24-bit colour at 200dpi – the colour of each individual dot is continuously variable throughout the colour range. With an inkjet, each dot in each colour can either be on or off – 4-bit colour on the CMYK BJC-600 – and other tones in the range are made up from dot patterns. Using dot patterns naturally reduces the resolution, so 24-bit colour is only achievable at a much lower resolution than the printer's base resolution.

The top-of-the-range inkjets like the Epson Stylus Color can produce extremely good output, especially when using expensive coated paper, but the detail can often be missing in subtle gradations of colour.

No such criticisms apply to the Primera dye sublimation printer from Fargo. Although this printer only has a resolution of 200dpi – almost a quarter of the Epson Stylus Color – the ability to precisely determine the colour of each dot results in a far superior print under most circumstances. This is similar to the difference between viewing a Photo CD image in a 256-colour and a 16 million colour mode.

Furthermore, the Spacetech printer driver uses rasterisation and anti-aliasing techniques in *Photodesk* to up the apparent resolution to an amazing 800dpi. This means that a very thin black line will actually be made up of a row of grey pixels, but this is only apparent at high magnification, and it looks very convincing otherwise.

The printer engine

The 'ribbon' for the printer is actually a roll of translucent film with three colours: yellow, magenta and cyan. The lack of a key (black) component is not a problem, as blacks and greys are on the whole excellent. Printing is a three-pass process, so you can watch the layers of your picture being built up. The printer takes a special paper – one of the down sides of this printer is that it costs over £2.50 for ink and paper per page.

The printer has commendably few settings to get wrong and is very easy to use. Even changing the ribbon is straightforward – far less messy than your average inkjet cartridge. The printer will also double as a 200dpi wax-thermal printer simply by changing the ribbon and paper. The quality of this is much poorer – colours are made up by dithering yellow, magenta and cyan dots – but it is a faster and cheaper process.

Print times

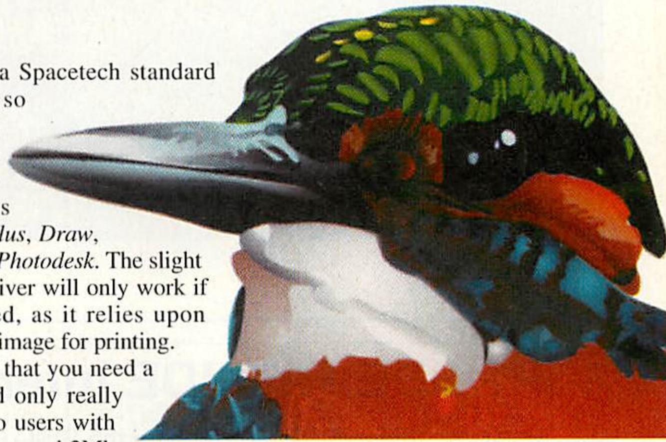
Print job	*Dye sub time*	*Wax-thermal time*
One *Impression* page	20 min	4 min
Kingfisher *ArtWorks* file	24 min	8 min
300dpi A4 image	1 hr 17 min	17 min

The software

The printer comes with a Spacetech standard RISC OS printer driver, so anything which uses the printer drivers should print to it. I certainly encountered no problems printing from *Publisher Plus*, *Draw*, *ArtWorks*, *Fireworkz* and *Photodesk*. The slight catch is that the printer driver will only work if *Photodesk* is also loaded, as it relies upon *Photodesk* to rasterise the image for printing.

The net result of this is that you need a lot of memory – I would only really recommend this printer to users with 8Mb or more. You need around 2Mb minimum free before loading in the printer driver and *Photodesk*, so 8Mb is too little for large DTP artwork. Thankfully, *Photodesk*'s virtual memory system means that large bitmap images can be printed, though they can take a long time.

The printer driver builds up the image on the hard disc, so make sure you have at least 20Mb free before you start. The good news is that printing is remarkably error-free – the software behaved itself very well in tight-memory situations where I have found *TurboDrivers* less than reliable.



Walter Briggs's award-winning *ArtWorks* creation, printed on the Primera printer at a virtual resolution of 800dpi. This shows a portion of the image, magnified linearly four times, which gives an idea of the quality of the print.

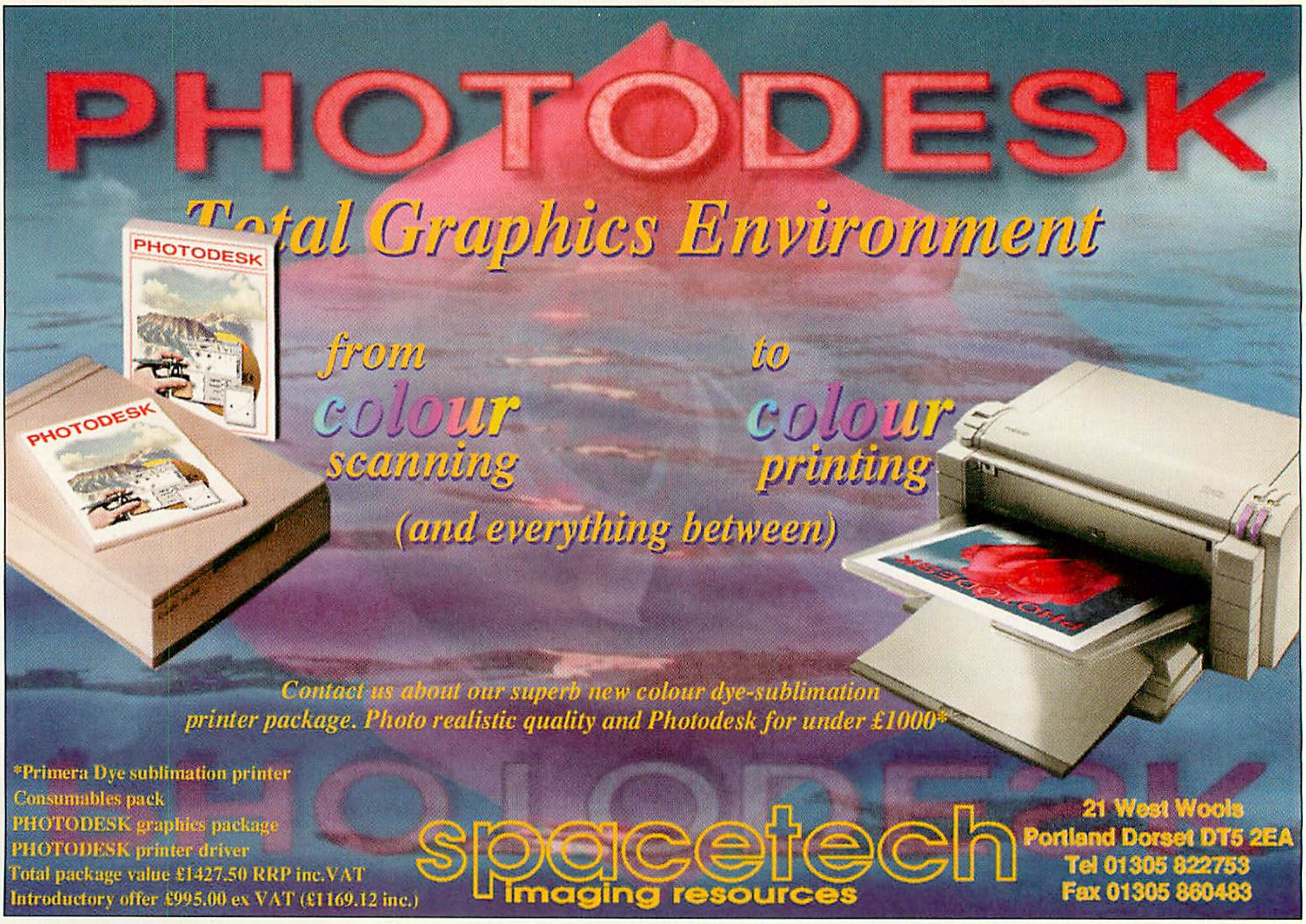
Conclusion

The high cost per page of this printer limits its use to those who require occasional high-quality colour proofs, or who have the money to spend. The quality is not quite that of a chromalin, so the printer is not suitable for true-colour professional proofs, but for its price the quality is amazing. Graphic artists on the Acorn should seriously consider buying one to generate high-quality proofs of their work for sending round to agencies. It will probably run as a second printer on most systems, along side a laser or monochrome inkjet, offering fast, good black and white printing, which would be used for everyday work. AU

Product details

Product: Primera printer and driver, with *Photodesk*
Supplier: Spacetech
Tel: (01305) 822753
Fax: (01305) 860483
E-mail: sales@spacetec.demon.co.uk
Price: £995 + VAT
Upgrade for *Photodesk* owners: £930 + VAT
Printer driver only: £60 + VAT

Pros: Superb colour printing • Excellent value for a dye sub printer • Will also do wax thermal printing (low-quality but cheaper)
Cons: Expensive to run • RGB quality not chromalin standard • Needs a powerful system to run on



RapIDE Fast IDE Interface

32-bit DMA-based IDE Interface for the RISC PC. Interface provides vastly increased throughput over the RISC PC motherboard. Using alternative drives it is possible to achieve reading speeds in excess of 8Mb per second using 32-bit direct memory access. Provides two IDE ports, allowing upto 4 devices to be connected including IDE CD ROMS. Full fitting instructions supplied. Also available, a range of fast IDE hard disc drives.

RapIDE RISC PC Interface	**£ 99**
540Mb 12mS IDE Drive	**£ 165**
850Mb 12mS IDE Drive	**£ 245**
1.27Gb 9mS IDE Drive	**£ 299**

512K cache, peak data rate into RISC PC of 8Mb/sec

SoundARC Computer Alarm

The SoundARC computer alarm is a perfect answer for deterring and preventing theft of your computer. Based on SoundOUT for the PC, which has been recommended by Police Crime Prevention Units, the device is key-operated and tamper-proof. A strong stainless steel fitting is used, which can provide protection for mice, monitors and keyboards. The unit features motion and jolt sensors and emits a loud noise if disturbed. Prevents theft of machine and items within.

SoundARC £69 SoundOUT for PC £69

CD-ROM for RISC PC

Connects to IDE port of RISC PC or a port on the RapIDE card. Supplied with dual IDE cable and ***PlayCD*** audio CD player software

Dual Speed	**£ 109**
Quad Speed	**£ 169**
Audio Mixer Board	**£ TBA**

In order to allow an IDE CD ROM to be used on A300 / 400 A540 and A5000 machines an interface such as the Watford IDE card must be used - which has an external connector. The software supplied with this card must be upgraded to be fully RISC OS 3.1-compatible. A5000 machines require a chip replacement also.

RISC OS 3.1 software for Watford IDE board	£ 15
Replacement chip for use on A5000 machines	£ 8
External case and power supply for CD ROM	£ 79

Watch this space for other exciting new products due for release very shortly

All prices exclude VAT @ 17.5%. P & P £ 5 per order.

Yellowstone Educational Solutions

Welbeck House, Welbeck Road, Luton, Beds., LU2 0HD

Tel: 01582 484828 Fax: 01582 415541

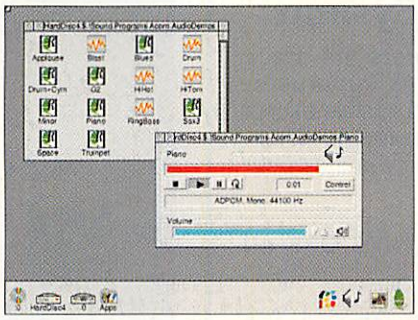
Taking the Minnie

Rob Miller upgrades his Risc PC with 16-bit sound, with the help of ESP's Minnie card.

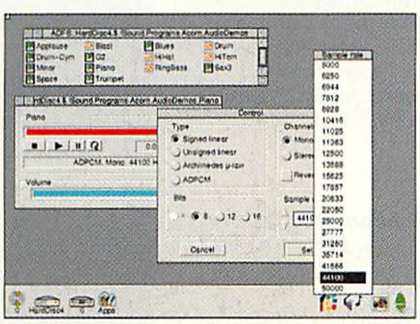
The Risc PC was always meant to have 16-bit sound but thanks to a little (over zealous) cost cutting, didn't quite get there. The VIDC20 – the new video and sound controller – was perfectly capable of outputting 16-bit sound data, but Acorn, in all its wisdom, thought sound unimportant and only fitted links for 'future expansion' on the Risc PC's printed circuit board.

Now, over a year after the Risc PC was launched, CD-quality sound is possible thanks to a small, plug-in circuit board and some new sound-driver software. The 16-bit sound card has been designed for Acorn by third-party developer ESP who produces its own version of the board called the Minnie Sound Card. Both cards are identical and are also supplied with the same software patches and applications.

Fitting the card is simple. Just take the lid off your computer, locate some pins at the back of the PCB and plug the card in. At this point, it's worth noting that some early Risc PCs were built without these pins on the PCB. Owners of such machines should still (just) be able to take advantage of their one-year service agreement and get their machines upgraded free of charge. Also, Cumana's 300ia CD-ROM drive uses the same pins and Cumana can supply a special splitter so that both devices work together.



Playing a 16-bit sound sample using the *Player* application supplied with the Minnie card.



The menu shows all the sample rates the Minnie card can play back.

Programs supplied

A single high-density disc is supplied in the package and contains some new modules that can be installed on your hard disc to replace those already used by the sound system. A small application does away with the need to fiddle around with directories, and a single click is all that is needed to install the new files on your hard drive. As well as new modules for the sound system, there is also a new version of *ARPlayer* to replace the one supplied with the Risc PC.

A small application allows you to play back a variety of different format sound samples. Most native Acorn formats are supported, plus a number of 'foreign' file types. Seeing that Acorn computers have only recently been able to support 16-bit sound, it makes sense to support formats from computers that have 16-bit sound, such as the PC.

On loading a sample, the player attempts to recognise the file format and changes the playback settings – sampling rate, data structure and so on – as required. If the sample is unrecognised, a default setting is used. This can then be altered via a dialogue box until playback sounds correct. It's unlikely you'll find many files you can't play, even if you import them from another machine such as a PC. If they have been generated/sampled on Acorn hardware, it's likely they will already be suitable for the player.

Samples can be loaded by either double-clicking on them (for native formats), or by dragging them onto the *Player* window. A standard set of 'tape-deck' controls (similar to those in *ARPlayer*) allow sounds to be played, paused or stopped. A repeat button allows a sample to repeat continuously and can be quite fun for creating admittedly simple drum loops.

Two sliders allow you to jump to any position in the sample or change the playback volume respectively. Although they are easy to use (just point and click), some more accurate control would have been useful, perhaps with a box to type an exact number in, or something similar. Saying that, though, *Player* is only really meant to be an example application and I'm sure there will be more professional applications that utilise the 16-bit sound in the future.

For those who wish to mess around with the playback frequencies, or for those with samples not recognised by *Player*, a sub-menu provides control over sample type – µ-law, for instance – number of bits, sample rate up to 50000Hz, and the number of channels – mono or stereo.

Summing up

If you own a Risc PC and are at all interested in sound, then the 16-bit audio card is an essential item on your shopping list. The quality obtainable from the card is exceptionally good, especially when you have the sound output from the Risc PC connected to a suitable amplifier. There are a couple of sound-only *Replay* files supplied with the Risc PC and it's quite amazing to hear these for the first time in full CD-quality stereo.

Apart from being able to play back 16-bit sound, the Minnie card will, with software soon to be released, give full Soundblaster emulation for those lucky people with PC co-processors fitted in their computers. If you are planning on running any of the many multimedia titles available for the PC, this is the only way you're going to get proper sound support. AU

Product details

Product: Minnie 16-bit audio card for the Risc PC
Supplier: ESP
Tel/fax: 0115-929 5019
Price: £59.95 +VAT

Pros: CD-quality sound on a Risc PC • Easy to fit • Plays many sample formats, including non-Acorn ones • Soundblaster sound output possible

Cons: Very early Risc PC boards may need upgrading • Not much software – yet

Speedy SCSI

Dave Lawrence looks at Cumana's SCSI 2 card.

When you buy a SCSI card you are buying two things: a piece of hardware to slot into your machine and a piece of software with which to control it. The Cumana card is well made and trivial to install. If you own a Risc PC it should be plugged into expansion ports 0 or 1 (in the base slice), so it can make full use of the Risc PC's Direct Memory Access (DMA) for the fastest possible transfer rates.

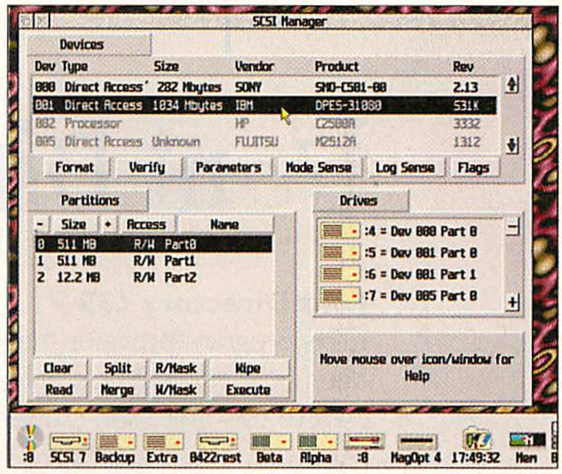
As with most SCSI cards, two bus connectors are provided – internally, a 50-way IDC (Insulation Displacement Connector, like the ones found the back of a hard disc) and on the outside a 50-way high density SCSI 2 connector. These micro connectors are a little fragile, and I far prefer the original SCSI amphenol flavour – much more sturdy, with good anchor points at the side for strain relief. The high-density connectors can become worn and rather dodgy after comparatively few insertions and removals.

The software comes in two lumps: one lump on the card's EEPROM consisting of the SCSI driver code, the filer and CDFS (including support modules for most common CD-ROM drives), and one lump on a floppy, which includes system management software, the *CDPlayer* application, *ChangeFSI* and, very usefully, all the documentation in various text files.

The driver and filer software function as expected, providing command line and desktop access to all your SCSI drives. Removable drives are automatically detected and a handy Eject option is added to the icon bar menu. It is a shame no one (not just Cumana) has picked up on our *INFO patch to provide different drive icons for different drives to help you identify what's where.

The other half of the software – the management – allows access to all the magic runes in the system. Most used, probably, will be the facilities for formatting and partitioning drives. For a long time now RISC OS has been limited to drives of 512K (although this should be changed sometime soon), so *SCSIMgr* allows you to divide a larger disc up into a number of sections which can then be assigned to different logical drive numbers.

In addition to high level configuration, the manager lets you examine just about every disc parameter and setting there is, though it's very unlikely you'll ever need to change any of these. You can also make partitions read-only for extra security. Talking of security, you can protect the SCSI manager in more ways than you can imagine to prevent unauthorised access to your system: a password is even needed to start up the manager. This will be appreciated in classrooms but does get a bit annoying for the single user. My only gripe about the manager is its styling – a fixed sized window (which takes up just about the full size of a 640x480 screen) with non-RISC OS-style 'sub windows' – and you also don't seem to be able to make any permanent changes (e.g. number of drives) without quitting the program. But then again, you don't have to spend all day using it.



The SCSI manager software.

Of course, what you really want to know about is its speed. Quoted speeds are given as 5Mb+/s; I've not been able to achieve this, but I have seen 3.5Mb/s (read) from an IBM 1Gb SCSI 2 drive, 3.5 times the speed of an Acorn card. More figures are given in the table.

If you feel the need for speed and simply can't put up with 1Mb/s, then SCSI 2 is for you. AU

What is SCSI 2?

When SCSI 1 was finalised in 1980, a group of manufactures petitioned to improve the standard as defined, and rather than delay SCSI 1, a group was formed to work together the plans for the so-called Common Command Set (CCS) to rationalise a lot of hardware development work. This would mean that much less device-specific work would have to be carried out. SCSI 2 started out by amalgamating all the CCS work and including support for tapes and optical discs, but it soon grew beyond this. Even now though, just about all SCSI 1 initiators (cards in computers) can talk to SCSI 2 targets (drives, scanners etc) and vice versa.

The main extra features of SCSI 2 are: Wide SCSI, data transfers of 16 and 32-bits; Fast SCSI (the Cumana card) gives 10Mb/s with the possibility of 20Mb/s and 40Mb/s with 16- and 32-bit transfers (though it is likely that SCSI 3 will be readily available before the need for such speeds becomes necessary); Active termination, for improved data integrity; and command queuing.

SCSI 2 speeds (transfer rates in K/s)

	Write	Read		Write	Read
IBM 1Gb			CDC 640Mb		
SCSI 1	1037	1024	SCSI 1	n/a	1035
SCSI 2	3401	3448	SCSI 2	924	1412
Fujitsu 230Mb MO					
SCSI 1	308	968	Conner 540Mb		
SCSI 2	404	1305	IDE	1362	1436

1) All timings taken on a Risc PC: average time of transferring a 500K file ten times.
2) IDE timing shown for comparison.
3) CDC drive is not specifically SCSI 2.

Product details

Product: SCSI 2 card
Supplier: Cumana
Tel: (01483) 503121
Price: £199 inc. VAT

1 Disc Rescue



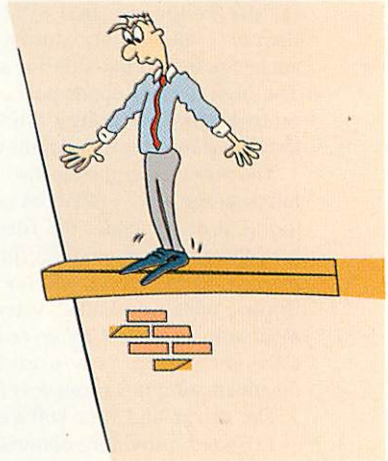
Archimedes Disc Rescue £35

- Repairs and recovers floppy discs and hard drives
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- Comprehensive 90 page manual
- RISC OS 2 & 3 compliant

"…a well written, highly usable suite of utilities with a window-based editor at the core and **an excellent manual**."
Acorn User, July '92

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Club Corner

Chris Jackson meets the C Acorn User Group, a team dedicated to C and C++ users on the Acorn platform.

Programming on Acorn machines is often seen as something nearly everyone does, but if you take a look at other platforms, such as the Amiga, the Mac and PC, there is a much larger percentage of users that don't know how to program. This is mostly because of the programming language built into the computer, BASIC, which entices users to go deeper into it; it's fun!

The language Acorn recommends developers use is C – it is a compiled language. C is much faster than BASIC and easier than ARM code to decipher, but what support is there for C programmers in the Acorn community?

The CAUG (C Acorn User Group), a special interest group section of the ACCU (Association of C and C++ Users) supports C and C++ programmers on RISC OS machines, providing a forum for sharing experiences and ideas. The ACCU has members such as Microsoft and Borland – people who keep in touch with the PC industry will know that these are the biggest software houses in the world.

Anyone, whether they are at beginner or expert level, companies or their representatives, is welcome to join. Currently, the CAUG has 150 members including Acorn, Beebug and Clares Micro Supplies.

As the club has the major C compiler creators behind it – Acorn and Beebug – members have direct access to the brains behind the compilers and could influence future versions with their input of ideas. *GCC*, the well known GNU freeware compiler, is also supported by the group, and the group will give you help in setting up *GCC* and its C++ counterpart to get the best out of it and the UNIX library that comes with it.

Both the CAUG and ACCU publish a bi-monthly magazine, and a disc is occasionally given to accompany it. The disc has programs, technical documents and various Acorn applications, such as template editors and assemblers. The journal and disc look very professional and I would certainly recommend that users who want help programming in C as well as experts who want to learn some new tricks take a good look at them. Distributed with the journal is a copy of how to contact the committee members and experts who are willing to help; members are encouraged to consult them on matters they are unsure about.

The club has also secured a number of deals with companies for discounts off certain products – members can buy software from various companies at knock-down prices.

C++ has just reached the Acorn platform, albeit in the form of *CFront* for users of *Desktop C/C++*, so some members might like to join another special interest group that caters just for C++ talk, such as reviews of C++ compilers, standardisation reports and interviews with people well known to C++ programmers.

The ACCU is also developing other services to take under its wing, such as a database of tools and utilities useful to C/C++ programmers and where they can get them from, which will be very useful, as tracking down useful resources can be very difficult. Over the years ACCU has been established, it has extensively reviewed over 650 books, and for a small cost a member can buy a disc with the text from the reviews, and there is bound to be the exact book they are looking for.

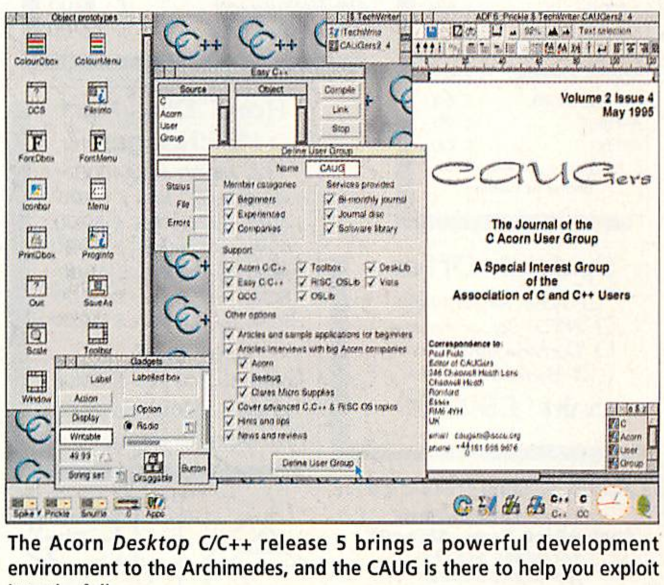
The cost of joining the group isn't extortionate either. All of the organisers donate their time for free, and all members pay for is the printing of the journal and the disc. If you are into programming and considering C then maybe you should check them out. AU

Contacting me

I would be interested to hear from any Acorn-oriented clubs throughout the world (especially Scotland) to cover in this article. You can get in contact with me by e-mail at cjackson@digibank.demon.co.uk, via my own BBS 'The Northern Arm BBS' on (01274) 530831 (at up to 14k4) or by post at The Club Page, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP.

Joining the CAUG

To join both the ACCU and the CAUG for a year costs £19 for individuals or £12 for full-time UK students. Non-UK enquiries are welcome and there are facilities for German members to pay in DM. You can contact the CAUG by writing to Paul Field,CAUG, 346 Chadwell Heath Lane, Chadwell Heath, Romford, Essex RM6 4YN, by phone on 0181-598 9676 or e-mail to caug@accu.org. Internet users can get an electronic copy of the ACCU information sheet by e-mailing info@accu.org or by accessing the ACCU WWW pages, currently at http://bach.cis.temple.edu/accu.



The Acorn *Desktop C/C++* release 5 brings a powerful development environment to the Archimedes, and the CAUG is there to help you exploit it to the full.

Acorn's World of training

In this issue's preview of the Acorn World show in October, sponsored by Acorn User, we take a look at a recently re-vamped area of Acorn's work – training.

So here we are at Acorn World '95. I see you have your list of things you want to see. What shall we do first?

Well, one of the things I want to find out about is training. Where do we go for that?

Come over here and you'll see the Acorn Training stand. It looks like a scaled down training room, with a large display screen and computers for hands-on activity.

Yes, here it is. But wait a minute – this stand has 'Insight' written above it; I thought you said it was an Acorn stand. Oh I see, Acorn's range of training products is now called 'Insight'. Yes, there it is: 'Insight Training Solutions from Acorn'. Now why on earth has Acorn done that?

Well, Acorn has been running training courses for years but most people don't even know it. Because many of the courses have been for specialists, like service engineers, other people don't think Acorn Training has anything to offer for them.

So 'Insight' has been introduced as a sort of brand name to cover anything to do with training; is that it?

Exactly. The intention is that Insight will become recognised as representing quality training for everyone, not just the technical specialists, and with the new name has come an expanded range of training. Just look at this calendar of courses on offer at the Acorn Training Centre in Cambridge.

Ah yes: 'The Acorn Explorer, Creative Multimedia, DTP Design...' I can see there's a good choice for anyone who can travel to Cambridge, but what about those of us who live hundreds of miles away?

Insight has something for them too. Many Insight courses are becoming available through local Acorn in Education Centres, or AECs. Wherever you live, there's likely to be one not too far away, and you don't have to be a teacher to book on an Insight course at an AEC. Home and business users are welcome as well. However, if you are a teacher, you will also be interested in educational conferences like Insight '95, which is on 14 and 15 July. They are a good way to pack a mix of training into a couple of intensive days.

It sounds as though Insight has quite a variety of training services. What about schools with a number of teachers to train? Do they all have to attend a scheduled Insight course?

The solution for them may be on-site training; particularly handy if your school has several members of staff to train, or when a customised course is required. It costs nothing for a specialist from Insight to analyse your training needs and produce a proposal.



Visitors to Acorn World '94 sampling Acorn training – something rather different is planned for this year.

Well, it all sounds fine, but how can I tell whether Insight training is all it's cracked up to be?

You can do just that here at Acorn World. Every day, Insight will be offering visitors a free taste of their hands-on training. Each 45 minute session is a sample of a full Insight training course. If you don't want to participate in the session, there will still be plenty of room to watch.

So how do I find out what courses they will be doing?

It's all described in your show guide and is listed up here on the Insight stand at the show. AU

Contacting details

For more information about Insight training courses and conferences, or about Insight sessions at Acorn World, contact the Training Administrator at Acorn Computers.

Tel: (01223) 254386
Fax: (01223) 254269
E-mail: training@acorn.co.uk

Ticket details

Tickets for the show are priced £5 for adults, £4 for children and £16 for a family, available by phone from the ticket hotline on (01933) 441448.

The missing link?

Colin Rouse investigates the potential of *Ultima*, a new way to create multimedia presentations.

Have you ever thought how stimulating it would be for children to present their work using a computer, but without resorting to a word processor? A new software package from SEMERC called *Ultima* may well provide that opportunity.

It can easily be used to meet the demands of the Communicating and Handling Information Programme of Study for IT at Key Stage 2 and beyond, as well as helping to address the cross-curricular issues involved in the development of Information Technology capability.

Ultima's capabilities

Ultima is a software package for creating and displaying multimedia presentations. A typical *Ultima* file will consist of a number of linked pages, each of which may contain text, graphics (either in *Draw* file or sprite format), animations (made up from a series of still graphics, sequenced within *Ultima* or in *Replay* format) and digitised sound (both spoken and music).

Pages are linked with 'buttons' which, when clicked upon, will display the page linked to them. A number of effects may be applied to the buttons whether they are displayed as a piece of text or as a graphic icon. These effects include highlighting and playing a sound sample and many other effects are also included in the package, enabling the user to create professional-looking pages very easily. Presentations may be created and displayed using the software package, but a very useful option has been included which allows the user to save the presentation as a standalone application which does not require *Ultima* to be present in order to run it. Once it has been created as a standalone application, it can't be tampered with unless the *Ultima* package is loaded.

Some very professional presentations can be produced with the minimum of technical understanding, but *Ultima* also boasts some more advanced features that will prove very useful when developing presentations. Text can be inserted directly from the keyboard or it can be imported from another application in the form of a text file. It can then be edited within the program and positioned at will. Graphics can be imported and positioned where needed and borders can be added and words highlighted, if required. The facility to create animated sequences is very useful, allowing simple pictures to be used to create a sequence.

Linking pages is simplicity itself, with a dialogue box to help you, and the opportunity to test this facility as you build the presentation. Sound can be introduced in two ways: firstly, when a button is actually clicked, and secondly when the mouse is moved over a button. Other useful features include the ability to control *Ultima* from other presentations; conditional click actions, which could be desirable in an adventure-type presentation; and switch access, both single and double, allowing access to those with special needs. The accompanying manual is very well written, concise and extremely helpful. The tutorial allows new users to become familiar with the program very quickly.

Using *Ultima* in the classroom

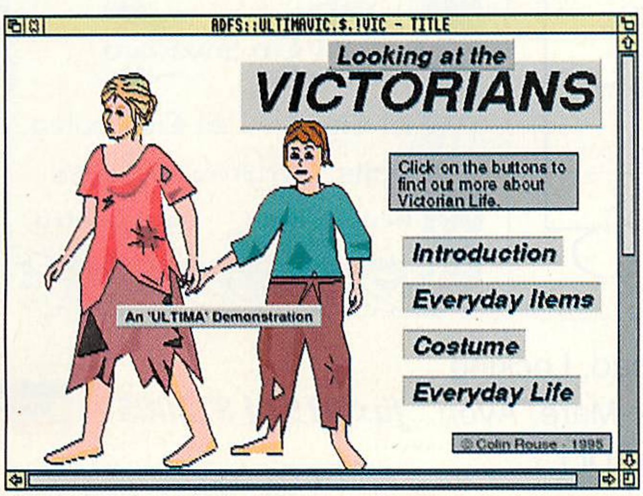
The children were very excited by the prospect of creating their own presentations rather than using commercially-produced software. The use of this package created a stimulus for some excellent work. The children soon became familiar with the conventions of the program and were able to produce some interesting presentations quite quickly. After experimenting with different styles and layouts, they soon came to the conclusion that they needed to plan their pages carefully, not allowing them to become cluttered and confusing, and to be more selective in the material they used. They also discovered that a paper plan of the whole presentation, showing how it all linked together, was extremely useful when it came to using the computer to create the presentation.

This is an excellent package for the Primary School to support IT at Key Stage 2, but it will find as many uses in secondary school. I would recommend it wholeheartedly.

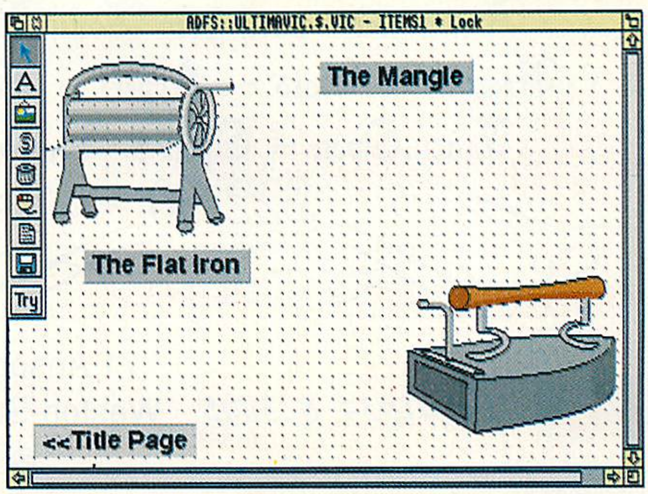
This review is based on a pre-release version of the software and so it would be unfair to list pros and cons at this stage. AU

Contact details

Product: Ultima
Supplier: SEMERC
Tel: 0161-627 4469
Fax: 0161 -627 2381



'The Victorians' – A Sample *Ultima* presentation.



Creating an *Ultima* page.

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VISA

Spots or stripes

Colin Rouse looks at Animals in Action, a new software package from Anglia Television.



A Pufferfish from *Animals.*

Anglia Television has produced six videopacks for the 7 to 11 age-group. Priced at £34.50 + VAT, these videopacks have been designed to fill the gap for schools which are not yet in possession of a CD-ROM drive. The first of these, *Animals in Action – Diversity*, consists of a 20 minute video, produced by Anglia and previously shown on the ITV Schools' network, and two data discs.

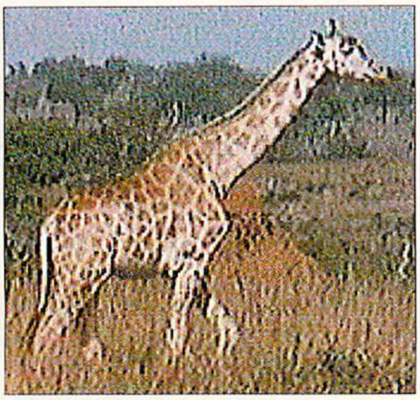
The video pack

The software package contains a video which has clips from the popular Anglia series *Survival* mixed with examples of animals in the studio and information about each. Anglia suggests that the video is indexed so that individual animals can easily be found. It is well narrated and informative, giving information about a variety of animals and their lifestyles, and is well suited to the intended audience.

Also contained within the package are two data discs containing images 'grabbed' from the video and saved as sprites, a datafile about the animals in the video saved as a *Keynote/Keyplus* file, a directory containing the printed worksheets from the pack, and a text file containing further background information.

To use the datafile, users will need to have access to *Keynote* and its companion spreadsheet, *Keycount*. Datafiles on the discs can be used with either. Anglia recommends that pupils become familiar with these programs to make the most of the datafiles provided. The directory containing worksheets in *Draw* is useful if you want to modify them to meet the needs of a particular class or group.

The *Keynote* datafile contains relevant material on the animals in the video, with a drawing of each, and is relatively easy to use and interrogate.



A Giraffe from *Animals.*

Animals in Action in the classroom

Using *Animals in Action* with children, I decided to show the complete video to them first. This proved to be a good idea as it stimulated a good deal of interest. The children thought the content was interesting and varied and the video was about the right length. Using the package as a way of interrogating a database, the children found it easy to use, providing them with a starting point of information which they could then use to research more about their chosen animal.

The children then had to produce a fact sheet about their chosen animal using a desktop publishing package including both text and graphics, which included either a *Draw* file or sprite taken from the disc, or a picture they had drawn taken from an art package. There were some pleasing results showing the ability to use IT in a variety of ways to present their work. This idea was further developed with a study of their school environment and the creation of a series of datafiles about it to supplement a series of guidebooks they produced using DTP.

Conclusion

I found this package to have a number of classroom uses. It allows the users access to interrogating a database and the stimulus to create their own, and it can be used for a specific study involving animals. It provides images and *Draw* files which can be used in desktop publishing work and information which could be helpful in providing opportunities for further research work. The video has clear and stimulating material to use as a starting point and as an aid to research skills.

However, as we are seeing, CD-ROM systems are becoming less expensive and I feel that, as we see more quality CD-ROMs being produced by the more forward-thinking software houses, CD-ROM systems will become the norm in the near future in the primary school. I question whether full use will be made of a package such as this when that happens.

Another point to bear in mind when considering a package like this one is the question of the availability of a video and television system to use alongside the computer. In my experience, many of our primary schools have computer systems which are shared between classes or teams, and most will only have one video system in the school, which is often in constant use either recording or viewing schools' or other programs. The logistics involved to ensure that they are able to be used in the same place at the same time may defeat all but the most determined of teachers.

This is a useful program in the study of animals or as an introduction to databases, especially if your pupils are already familiar with the *Keynote* database package. AU

Product details

Name: Animals in Action – Diversity
Supplier: SCA (Anglia Television)
Tel: (01268) 755811
Price: £34.50 (plus P&P £2.50 and VAT)

Pros: Quality material • Lots of motivation
Cons: CD might be a better medium than video • A little pricey for primary schools

Creating a school journal

Geoff Preston explains how to use your Acorn computer to produce your very own school journals.

Each year we used to issue our students with diaries in which they recorded the homework they had been given. They were approximately A6 in size and the cost had been steadily rising while their use was diminishing. Working on a budget of approximately £1.20 per student per year, we decided to produce our own.

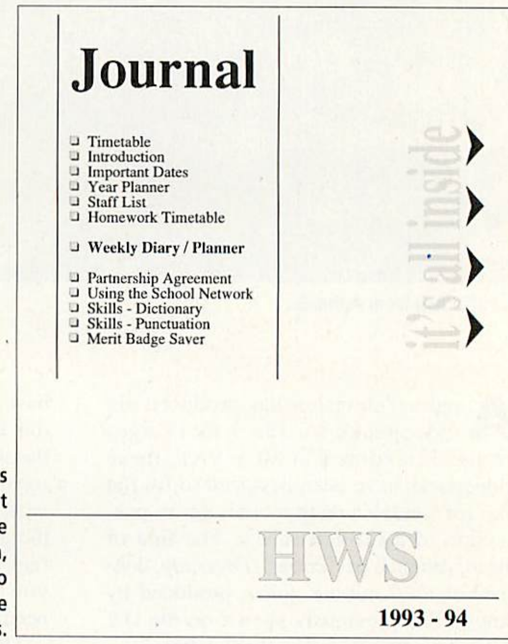
Producing a booklet like this on a small budget means compromises. I would have preferred to have had a B5 booklet but this would have pushed the price up too much, so we were forced to stay with the slightly smaller A5, effectively A4 sheets folded in half. Secondly, the paper had to be sufficiently thick to withstand a fair amount of punishment, but that also meant that enough pages to last a year would have required a lot of folded A4 sheets, resulting in a very thick book which would refuse to remain closed.

We therefore chose to provide students with two books per year: the first to run from September to the February half-term and the second from February to the end of the year. Thirdly, we had to produce a book which would be both appealing and useful to everyone in the school – girls and boys between 11 and 17 years. That was a real challenge.

Number of pages

The school year is usually 39 weeks, which means each book would need space for recording work for 20 weeks. If each week occupies one double page, that would be ten sheets. The optimum number of sheets for the size of book, thickness of paper and method of binding is 13 sheets plus a cover. This meant we had enough room to include a few extra bits, and if we printed on the inside of the cover there was scope to do some quite fancy work.

We listed the features we wanted included on the main pages. I'm not going to outline all the features, but one quite important part was a space for students to record their weekly Information Technology achievements. The design work was roughed out by hand and drawn using *Vector*. Once complete, the pages were saved in *Draw* format and each imported as a graphic into *Impression* master pages.

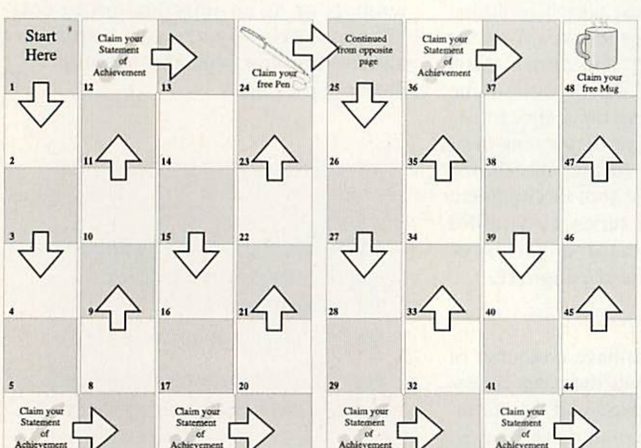


The cover is all-important and to save space within, I used it to carry the contents.

Merit scheme

For almost a year we had been operating a merit badge scheme. Simply put, students were rewarded for good work by being given a sticker. It was a surprisingly popular move which the students throughout the school took very seriously. The problem was that the merits were stuck on several different pieces of work and nobody could keep track of them.

The journal presented us with an ideal place for keeping them. Controversially, I made the merit sticker pages look like a board game. Merits are stuck around the squares and when a line has been filled the student is awarded a small certificate which we call a Statement of Achievement. A page full of merits gives them a free school pen and for two pages, a specially commissioned school mug. Some people, I know, feel very strongly that we are motivating students in the wrong way and are rewarding them for doing what they should be doing anyway. My view is that if you can encourage students to produce better work and at the same time put a little light-heartedness into the proceedings, go for it.



This double-page spread is a convenient way of storing students' merits.

Printing is, of course, the expensive part and it pays to shop around. Actually, the really expensive part is folding, stapling and cropping the books. Having produced the booklet as an *Impression* file, I laser-printed one copy at 600dpi and sent the sheets to our local printer who made plates from the printouts. It's not the best way of doing it, but it's about the cheapest.

Every school can, if it is prepared to spend the time, produce a journal like this. Students use it and like to use it. To help people get started, the main graphics can be found on the *Education Disc* given free with the subscription to *Acorn User*. Included are the main pages, merit stickers, merit pages, Statement of Achievement certificate, and homework timetable. All that would need to be added are a timetable blank and a cover, although other pages could be added if required.

Protecting the past

Fred Luzanycia and Colin Field
outline an Historical IT lesson.



It's much the same as it used to be... apart from double glazing, pebble-dashing, painted brickwork, plastic trellis, anaglypta, alarm boxes, television aerials, satellite dishes...



The Prospect Place project emerged from collaboration between the History and IT departments in Highgate Wood School, with support from Section 11. A development target for 1994/5 was the introduction of IT into Key Stage 3 History, and subject teachers asked for support in developing a module which would:
i) meet National Curriculum requirements in KS3 History and IT data handling; and:
ii) be differentiated for mixed ability groups, including bilingual pupils.

A tentative suggestion was to develop a small database from 1881 census material for Tottenham. The data was entered into the database by the IT teacher using *DataPower* from Iota.

The Section 11 Curriculum Support Teacher was able to act as a link between the IT and History departments and use expertise gained in other subjects to write materials which were accessible to pupils with different degrees of competence and language proficiency.

The project has exceeded expectations in its degree of sophistication and now draws on a range of IT facilities. It is designed to be taught through a half-term block (i.e. seven lots of 70 minute periods).

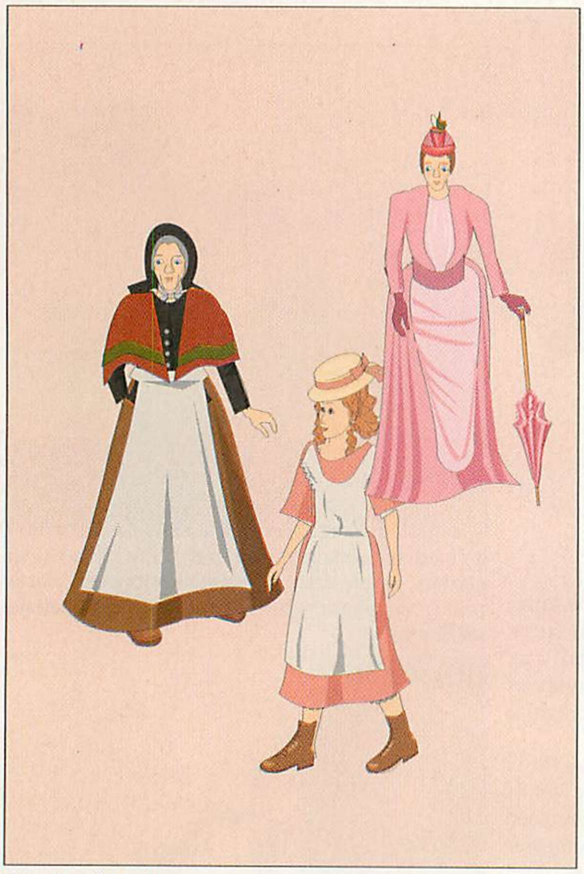
Lessons 1-3: Prospect Place, 1881

The project is introduced to classes with a short talk on 19th century urbanisation. The database contains demographic data for Prospect Place in N17, a street of only ten houses. Pupils are able to use this small data sample to carry out an authentic historical investigation. They have a four-page pupils' guide/task sheet from which they learn how to use the basic operations for searching the database and record the relevant census information. They are able to work at their own pace and may choose to work alone or in collaboration with other pupils.

Experience has shown that there is a strong motivation for pupils to find the answers themselves, so while it is possible to copy the answers, the emphasis of their discussion tends to be on establishing the correct answers. The first task, for example, is a deceptively simple series of questions asking: 'How many ...?' (This structure is used repeatedly as most early stage learners of English are able to recognise it).

When establishing how many people were over or under 16 years old, they need to discover that the computer can only read '>16' and '<16', so if someone is exactly 16, they will be omitted. After the initial confusion, they begin to look for ways of verifying their answers and learn not to entirely trust the computer. Another idiosyncratic design point is that the questions are not numbered because, in practice, users tend to experiment with the database before attempting to write their answers. They are made aware that it is actually possible to do the tasks in any order. Differences in competence determine the 'difficulty' of the tasks, so Part 4 is not necessarily harder than Part 1. Pupils with limited English may be more methodical than native speakers in 'learning by doing' and may get more accurate results!

In the second phase, pupils produce graphs using *Graphbox Professional* from Minerva or *Presenter* from Lindis. Some of them had produced graphs in other subjects and peer teaching was encouraged. The motivation to produce a distinctive graph encourages pupils to become familiar with the design aspects of the program. The production of a graph from the raw data reveals the necessity of doing some manual calculations as it is not possible to produce the required graph directly from the database. So, in order to produce a pie chart showing the Place of Origin it is necessary to:
i) search the records for 'Birth Place' and list them;
ii) sort the records, which show place of origin by town/district and county, into some sort of



Victorian clip art from SEMERC is informative and enables students to add meaningful graphics to their work.

grouping. (We decided on 'Tottenham', 'Other parts of London', 'England'– outside London and 'Scotland'– which has one record);
iii) add totals and process them through *Presenter* to produce the pie chart.

This was simplified by providing a partially-completed table in the pupils' guide, so that they need only list numbers by 'Birth Place' and do part three. The pupils' guide also includes illustrated 'step by step' instructions for using *Presenter*, produced by the Head of IT.

Two different graphs: 'Number of people per household' and 'Place of Origin' are integrated into a short report in which pupils summarise their results. Reports are structured so that pupils can work at different levels. The report must not exceed 300 words and must focus on three areas:
i) a summary of the census data, referring to age, family size, occupations and places of origin;
ii) an explanation of the graphs;
iii) a comparison with (simplified) data from the 1981 census.

At the basic level, pupils may complete guided paragraphs, while at the higher levels, more sophisticated interpretation of the data is expected in which local knowledge or reference to other sources may be evident

The reports are given a weighting of 40 per cent of the overall assessment in order to emphasise to pupils that the point of the exercise is to present findings from historical research, as experience shows they may become lost in the mechanics of the data-collection exercise and fail to see its significance.

Lessons 4-7: Life in Victorian Tottenham

In this extension, pupils use *Impression Publisher*, a DTP program from Computer Concepts, to produce their own pamphlet on an aspect of working class life in Victorian Tottenham. They can choose from a series of photographs of Prospect Place (which, happily, still exists) and *Victorians*, a collection of clip art from SEMERC. Photographs were taken by the Head of History, using a Canon Ion digital camera. They were then digitised so they could be integrated into the pamphlets or used as slides. The clip art includes illustrations of dress, furniture, working life and houses.

Further source material was obtained from *How things were*, a booklet produced some years ago by the Tottenham History Workshop. Topics include Houses, Furniture, Work, School, Housework and Shopping. Each section has been edited into text files with three reading levels. Pupils choose a theme for their pamphlet and then search the texts for the relevant information. They can either select excerpts and copy them directly, or use them to compose their own accounts – 'A day in the life of ...' or 'Children in Tottenham, 1881...'. The pamphlet is in a format that limits the space for text and illustrations, so the user has to be highly selective when searching and editing the material. (They are also able to draw on other sources if they wish.)

The four periods are divided between the classroom and IT rooms, with the first and last periods mainly devoted to introducing the task, an evaluation of the IT skills acquired and a discussion around the pamphlets. The pupils are not directed to any specific reading level but are shown sample pamphlets which illustrate different attainment levels. Differentiation is by outcome, with assessment based on organisation of material, and relevance to chosen topic. They are advised to try to relate to the evidence collected from the census exercise.

Project benefits

The project illustrates how experimentation and collaboration between teachers can produce unexpected quality. The initial trial with one Year 9 class revealed a number of problems. The wide variation in IT skills and experience made an individualised approach essential. Some pupils were able to complete their search of the census data inside a single period, while others had to learn basic operations.

A pleasant surprise was that they gained competence very quickly and soon learned to detect errors. They were able to produce their graphs easily, through sharing expertise. While they were enthusiastic about making the computer search, they were less inclined to examine its historical significance and the reports were rather poor in quality. (The inexperience of subject teachers in exploiting IT probably contributed to this.) The source material on Tottenham was introduced too late, in hard copy form, so not many pupils produced complete pamphlets because they lacked the word processing skills to write and edit the text themselves. This experience lead to refinement in to the present format.

The History teachers still felt it was questionable whether the quality of learning in History was sufficient to justify the allocation of so much time to a topic that has relatively little prominence in KS3. Perhaps the most important result has been to persuade them of its potential as the module does employ a range of historical skills. A further development may be to continue with the database, but to split the IT block in to two and examine a different topic. AU

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Letters

Accurate reflections

Congratulations on the latest issue. Some of your readers may think you have a downer on Acorn, but I feel you have accurately reflected the mood within the Usenet group. We are all keen to see Acorn succeed, and many are frustrated at the lack of progress in certain areas. I know Acorn is a small company with limited resources but it won't harm it to know how its users feel.

Acorn certainly can't criticise your magazine. With a single issue you have done more than Acorn itself has managed in two years – brought affordable CD-ROM players to the market and encouraged their use. I'm delighted you have also published Dr Alan Hassey's excellent Internet starter pack: Acornites are not all teachers you know!

Dr Ian Trimble
via the Internet

CD-ROM praise

Congratulations on the cover CD-ROM. The result is excellent, though it must have been a nightmare to produce. I'd be very pleased if this could be an annual thing: it's better to have a really good one once a year, than to be struggling to find material for a disc every month, even if you wanted to!

My initial impressions: there are two things in particular I like:

1. It's very handy to have the old *Acorn User* cover discs together on the CD. Though it duplicates old material, it's much easier to find that program I vaguely remember from two years ago by searching though one CD, rather than rummaging though a pile of floppies.
2. The clip art/images, especially the space images.

I'm also glad to see the CD-ROM drive offers, though I have one already. I hope it succeeds in increasing the user base of CD-ROMs.

It's also good news about Mike Cook joining the magazine. I'm afraid I never thought much of *Acorn Computing* in general – there was not much in it compared with *Acorn User*. But the one thing which did prompt me to buy it from time to time was his column, as he covers an area of computing which doesn't seem to feature anywhere else.

Paul Hendricks
via the Internet

Next time

Congratulations on an absolutely brilliant cover CD-ROM – and for only an extra 30p!

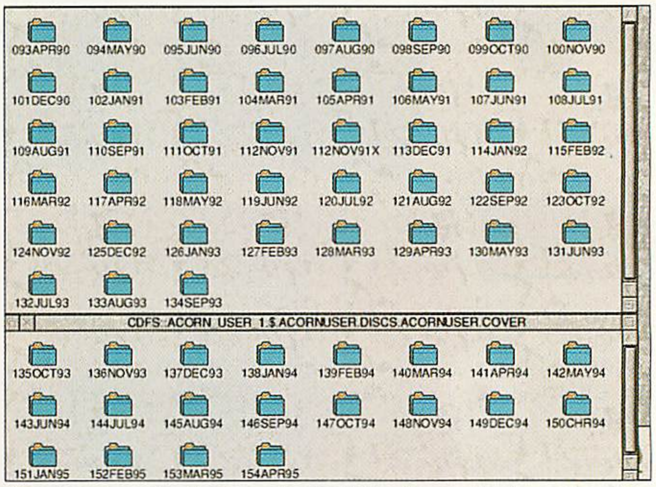
However, if you were ever to do another CD please could you follow a couple of my suggestions. If a file is bigger than 2Mb – like the AVI files – then do not compress it, otherwise if you have no more than 4Mb RAM you cannot decompress it.

Also, it would have been helpful for your readers to know that *ArcFS* sometimes faulters, giving errors like 'corrupt data' or 'wrong password'. I have experienced this a couple of times, but if you reload *ArcFS* then the file will decompress.

I don't want to sound as if I'm griping because the CD is brilliant. I would definitely pay up to £1 more to receive a CD monthly, but having said that, is there really enough Acorn software to justify this?

Anyway... brilliant, brilliant!

Richard Barlow
via the Internet



A vast number of past cover and subscription discs on the *Acorn User* CD-ROM, and this is just the *Acorn User* ones.

Slap those wrists

There's nothing wrong with *CFront* (Acorn User April 1995, page 13), Bjarne's C++ to C translator (not the other way around as you state). Sun has only just produced a native C++ compiler, and Hewlett Packard's C++ is still *CFront* based.

I don't know what kind of 'implementation' Acorn performed – Iota simply ported it to the Acorn before writing *EasiWriter* – but the generated code has been quite good enough for tens of thousands of programmers in the ten years since its commercial release.

However, to focus on the machine code – or even the compiler speed, as you quote David Pilling doing – is the wrong viewpoint. The advantage of C++ is that development is quicker and quality higher. It doesn't matter if the compiler takes an extra few seconds if you don't have to recompile so often, and you're done coding so much sooner. It doesn't matter if your program takes a couple more kilobytes if you can make it 25 per cent cheaper, because the development cost less.

David shows his lack of grasp by stating he'd use '*some* C++ features' – you get very little benefit unless you go all-out for Object Oriented Programming. Not all dyed-in-the-wool procedural programmers can change to the new way of thinking, but those who do are converted for life.

Secondly, please stop with the my-computer's-better-than-yours comparisons. This is becoming increasingly intrusive in the Acorn magazines and the Usenet groups, usually ending with an appeal to Acorn and developers to fix the unfixable. Even though we motorcyclists know that bikes are best, we will never convince car drivers, because they just want to go from A to B without getting wet. The engineering and the fun aren't important.

There's also no point in throwing tomatoes at Computer Concepts/Xara: companies are in business to make money, not to support hobbyist industries. At Eidos (I wrote most of *Optima* and began the conversion to *Eidoscope*) I lobbied to abandon the Acorn platform for PCs because I wanted the company to earn loads of money. It's going to be the PC, Mac and embedded applications for *ESCaPE* that make Eidos money, not any home-video applications.

Incidentally, I'm surprised you and Eidos didn't get together and put some *ESCaPE* movies and a nobbled version of Eidoscope on your CD. It seemed an ideal opportunity to get some big data to the masses.

Adam Curtin
via the Internet

Superb shareware

Too often we read about bad service and lousy shareware. I thought that, for a change, your readers may be interested to know that there are some 'nice' folk out there after all!

I had been fruitlessly scouring the maze of shareware catalogues and contributing heavily to British Telecom's profits in search of the ideal disc-cataloguing program when, lo and behold, a friend showed me your magazine with a review of just what I was looking for. Armed with this information, I sent off to the author of *DiscTrack* for the registered version and was amazed at the quick response – it arrived by return of post. The program is brilliant, to say the least, and if anything is underpriced. It is extremely easy to use and is sophisticated

enough to please even the most stringent requirements.

Thanks for putting me onto a 'good thing'. My subscription application is winging its way to you in the post. Keep up the good work.

J Briant
Southampton

Senlac service

It's not often I feel the need to write to a magazine about someone's view of Acorn-oriented service – in fact, I don't have the time, so the comments are short, and sweet.

Mr Cross (Letters, April 1995) says he's waiting to receive software from companies that have been advertising, but are not ready to begin distribution – he could be waiting for Windows '95! But having been in business for over 20 years, I know good service when I encounter it. I could wax lyrical about the wonderful service of *all* Acorn dealers – which isn't actually the case – but compared to the 'other' dealers in the Mac and PC markets, there really is no comparison.

Now, possibly, I get very good service because I am reasonably well known, but going back to my first A5000, bought from Senlac Computing, they were not only willing to sort out problems that were not their province, but they were willing to lend me their own personal equipment to get me out of a sticky situation.

I have found the personal service from Senlac is, in the main, typical, rather than the exception.

Walter Briggs
Kingfisher Graphics

Up Acorn!

With reference to the Letters page in April's *Acorn User*, I was amazed at some of the negative views expressed about Acorn. Mr Cross' letter could be typical of a user on *any* computer platform – there will *always* be good and bad dealers, just like software. Yes, bad dealers will drop out, but unfortunately there will always be others waiting in the wings. However, of all of the computer platforms, Acorn is without doubt the most friendly.

The PC card (and the odd game) aside, Acorn and its third-party software houses are among the few producers who *do not* advertise vapourware to anywhere near the extent of other platforms. (i.e. Windows '9x etc.).

Most Acorn software houses provide free help, whereas the increasing trend on other platforms is to charge for it. The reason that Acorn software houses can afford to do this is simple: an excellent operating system in RISC OS. Gordon Carruthers' letter confirms this – Acorn users don't have to worry about their *CONFIG.SYS* or *AUTOEXEC.BAT* files, let alone their *WIN.INI*.

C R Tatum's letter also confirms this. He may spend a certain amount of time having to remove his new Gortex dust covers from his Acorn machines, but you can guarantee he will have them running before he's managed to boot up his dust-covered PCs!

David Jewson should know better if he has access to a crystal ball. Acorn produced a new version of RISC OS (for the Risc PC) a year ago – Windows '9x was and still is vapourware. Knowing Acorn, there is bound to be a further update soon. It doesn't take a crystal ball to see what will happen to Windows or DOS in the future – DOS is well past its sell-by-date, and nobody is that certain that Windows '9x will even get date-stamped.

Finally, Mark Moxon's Viewpoint doesn't take into account Acorn's *Welcome Guide*, which is extremely clear – even how to undo the box the machine came in.

The statement 'the first time you run the Mac Guide' assumes you've managed to find out how to run the Mac Guide. At least the PC comment implies the difficulties involved with actually installing and running Windows. Acorn users, on the other hand, simply turn on the computer.

Quentin Pain
Apricote Studios

Viewpoint

There are lots of good letters this month, so this Viewpoint is dedicated to answering them. And, of course, there's a bit of juicy comment thrown in to amuse and abuse.

1. The CD-ROM went down well, and so it should. It's about time this market realised the potential and flexibility of CD-ROM technology, and how cost-effective it is. If you've got a Risc PC, you can get a decent CD-ROM drive for under £140, and it's not that much more for older machines. And what does this get you? Access to the most stunning range of software, from encyclopaedias to collections of Public Domain software to indispensable reference ROMs like our cover mount from last month. With a PC card you can access PC CD-ROM titles, the range of which is ridiculously large. There's no point in kidding ourselves that the CD-ROM market is as large on Acorns as on PCs, but it's growing, and a CD-ROM drive is no longer an expensive luxury: it's a bargain.

2. Adam Curtin asks us to stop the 'my computer's better than yours' comparisons. Why? We're quite adamant that Acorn machines are wonderful to work with, but we're also very aware that other platforms do some things better than Acorns.

3. As for throwing tomatoes at Computer Concepts about its developments for the PC platform, that's a little harsh. We see it as a good thing: CC will end up having more money around to throw at the Acorn market. CC has never said it is going to pull out of the Acorn market, and admits that the Acorn market is what keeps it alive. Nothing but respect here, man.

4. It's good to see Shareware working, too. There's some dissension in the Public Domain market as to whether Shareware can work, and in a market the size of Acorn's it's certainly not as lucrative as Mac or PC Shareware. On the other hand, there is one advantage in the Acorn market – and I apologise to non-UK readers for the following comment. The vast majority of Acorn users are in the UK, so the old problem of trying to send your £10 registration to someone who only deals in dollars doesn't occur that much. Try Mac Shareware, and it'll cost you so much to get the money to the author that the system falls down. Be thankful for small mercies, and keep supporting the Shareware authors for their sterling work.

5. Putting a letter from the aptly-named Mr Cross in last month's Letters page certainly put the cat among the pigeons. For those of you who missed last month's exciting episode, Mr Cross had a go at Acorn dealers. It's heart-warming to see how satisfied a lot of you are with the standard of service you receive from your dealer; on the whole Acorn dealers do a brilliant job.

6. Quentin Pain says that RISC OS is developed constantly, and that we had a new version, 3.5, a year ago. Fine, 3.5 is a new version, but there's not that much difference except support for the Risc PC's innovations. Witness the fact that the PRM for RISC OS 3.5 is just a supplement to the 3.10 tome. RISC OS 3.00 came out in 1991, with the A5000. That's a hell of a long time ago, and I want features like virtual memory and long filenames. Is this too much to ask?

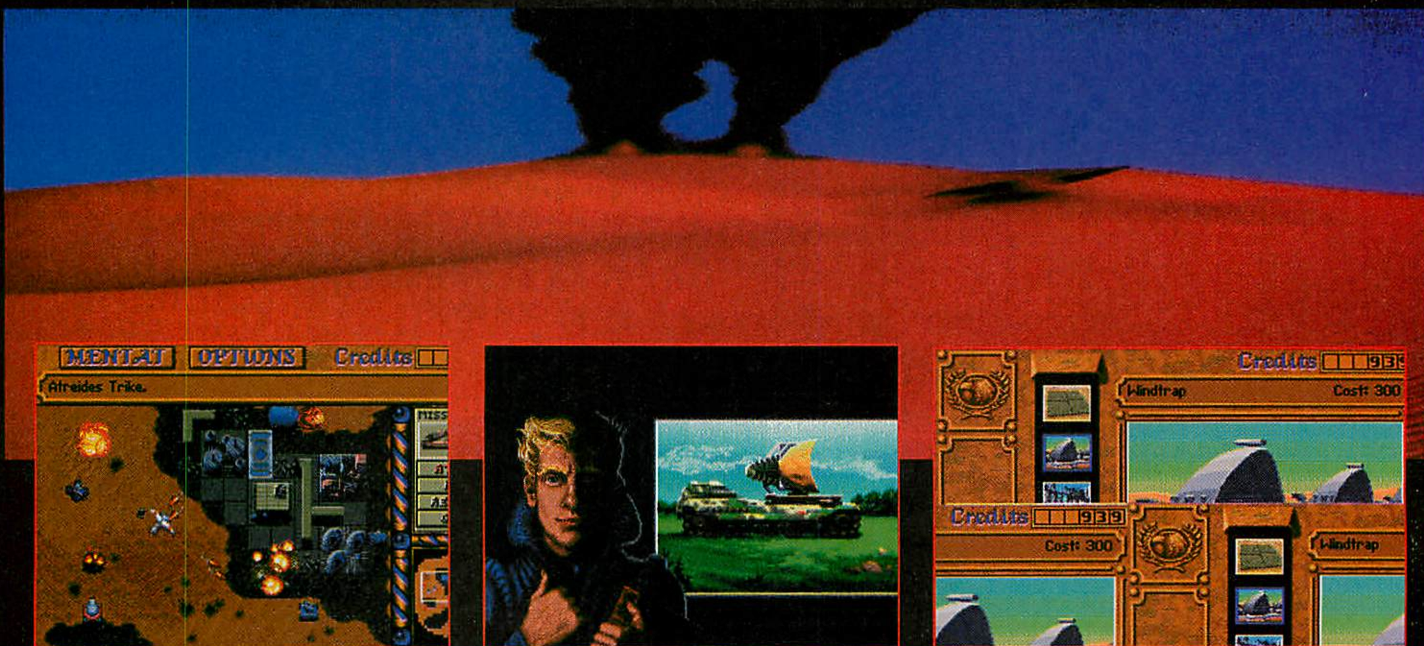
7. The Acorn *Welcome Guide* is beautifully clear, but it's not quite as clear as Apple's equivalent, the *User Guide*. This has a whopping 18 pages showing you how to set up your system – now *that's* detail – and another 20 describing how to hook up peripherals. Face it: Apple does this help-thing better.

8. Have you noticed that four of our letters this month came via the Internet. It's easy, quick and – so we're all sick to death of hearing – it's the future of communications. Am I the only one, then, who's rather disillusioned by the amount of crud clogging up the superhighway? E-mail is fine but newsgroups are a different kettle of fish. The comp.sys.acorn family of newsgroups is huge, and finding stuff worth reading is like wading through glue. Roll on the csa flame wars, I'm ready for you... :-)

Mark Moxon

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GAME SHOW

Welcome to another Game Show – the Harrogate Spring Show is upon us, and there are some interesting developments on the games front. Gamesware is hoping to release the CD-ROM version of its graphic adventure game *Simon the Sorcerer*, featuring Chris Barrie as the voice of the young hero.

Burn'Out, subtitled *The Race on the Edge*, will be released at the show in a blaze of publicity, and it'll be a perfect time to give the game a try. Oregan will be dedicating over half of its demonstration area to *Burn'Out* and will be wiring up two A3020 machines with steering wheels and pedals to add to the excitement. Oregan will be using a credit system to make sure that as many visitors as possible get the chance to play the game – if you want to see *Burn'Out* for yourself, don't forget to pick up your token from the Visitors' Centre or direct from the Oregan stand.

Flying higher

Although the Acorn has seen quite a few different joysticks and joypads spring up in the last year or so, they've all been based on a digital design. These are great for using in platformers and shoot-'em-ups, but if you're looking for realistic control in flight simulators or racing games, they don't give the player the correct feedback.

Magnetic Image has just announced the release of the first analogue interface for the Acorn which makes use of PC joysticks. Flight Max plugs into the parallel port and allows you to use one joystick (two if you have a splitter cable) to drive Acorn games. Flight Max will work with PC-compatible 15-pin analogue joysticks and flight yokes to add that extra touch of realism to your favourite simulators. If you would like more information, contact Magnetic Image on (01376) 500590.

Simon's saga

For anyone who's finding *Simon the Sorcerer* a bit tricky, here are a few hints to help you get started. Firstly, it's important to investigate locations meticulously so you don't miss any items because the chances are that if they're well hidden, you'll need them for your quest. Come to think of it, there's very little you *don't* need.



The inn can be a useful source of beer, but remember that Simon is under age.

There are several key tasks you must complete to finish the game, but in order to gain the equipment you need you'll find yourself picking your way through a tangle of interconnected problems.

As the introductory letter from Calypso reveals, you've been chosen to rescue him from the clutches of the evil Sordid. After you've talked with the wizards in the back room of the pub, you'll realise that one of your goals is to join their ranks – however, one of the conditions they stipulate is that you must find a missing staff for them. Once you've worked out how to collect that, you can then search for your spell book and learn some magic words so you can do battle with the resident old witch. After an encounter reminiscent of a Disney animation, you should find that she's stuck in her cottage in the shape of a dragon, and you're outside with her broomstick. The broom will help you get into Sordid's tower, and after you've helped some demons to escape, it's time for a showdown with the evil renegade.

One key to success is knowing your way around, so it's a good idea to visit all the locations you can at the beginning of the game and pick up anything that isn't nailed down. The forest can be a dangerous place – to start with you should have a word with the barbarian, who will be able to help you later on, should you meet anyone who obstructs your progress.

In order to progress through the game, you must visit the tower in the forest and rescue the damsel in distress. As you might expect, the front door's locked so you'll have to find an alternative method of entry. The bell looks promising, but it's a bit quiet when you first find it, so search for the missing piece and give it



The dragon has a large store of change – if you can get to it.



The wise owl can prove to be useful as well – that is, if he can stay awake for long enough.

a ring.

In order to slip into the Dwarves' Mine, you'll need to look like one. Unfortunately, there aren't any joke shops in the village so you'll have to look elsewhere to find your fake beard. This is where you need to use the scissors hidden in Calypso's cottage – just find a suitable candidate and give them a trim. However, it isn't enough just to look like a dwarf; you have to know the password as well. Luckily for Simon, it appears that the dwarves haven't got particularly good memories and they've left the password hidden near the door.

Now that you've gained entry you might need a couple of bargaining chips, so it might help you to know that dwarves are fond of the odd mug of beer – although there's a well-stocked tavern in the village, Simon's too young to drink so he'll have to resort to more nefarious means. The barman always puts his empty barrels outside the front door, so that may give you a clue – if you were to block up the tap on the beer barrel with something soft, he might just think it's run dry. However, you'd have to distract his attention first.

If you make use of the well outside the witch's house, you should be able to con the village oaf into letting you have his 'magic' beans. Somebody's been leading him up the garden path – they're certainly not magic, but Simon can find a use for them. Calypso the wizard kept a particularly fine compost heap behind his cottage, so planting the beans there might have some effect. Once you've reaped the harvest, it's time to silence the bard. Having deprived him of his sousaphone, you'll be able to get into the mountains, but before you do, take some time to console the woodcutter – he's got a magnificent stock of fine wood hidden somewhere in his house, and there are some woodworm in the forest with very demanding tastes.

The woodcutter's having problems chopping down the trees in the area due to their magical properties, so he needs some help in making an enchanted axe head. After you've persuaded him to let you have his metal detector, you'll have to search the map until you get lucky. Even then, you will need some help in digging the ore from the ground – although if you've been keeping your eyes open, the choice of candidate should be obvious. Once you get your hands on the milrith, a trip to the smithy could be in order.

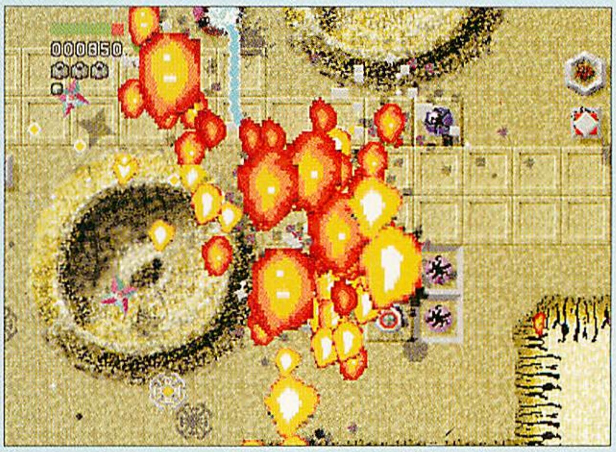
Money's always a problem, isn't it? If you find you could do with a little more throughout your travels, it could be renumerative to pay a visit to the dragon – after curing his cold, that is. He's got an immense amount of loose change, but it's somewhat tricky squeezing past him to pick it up. However, if you feel like a spot of fishing you could try climbing up onto the roof of his lair, using specialist equipment from the dwarfs' mine, and dangling a magnet down his chimney. You and I know that gold isn't magnetic; however, nobody's told the dragon and you can collect a tidy little sum which could come in useful for those *WizKid* subscription fees.

The Swampling is a particularly sad little character, and his cooking doesn't win any awards either. Still, there are other people in the forest who are willing to eat it, so find a container and order some to take out. Have a good look at the floor as well and you should be able to find the route to Skull Island. The walkway may require a little maintenance, so you'll have to pay a visit to the village shop to spend some of those hard-earned coins.

At all times remember, the author of this game had a wicked sense of humour. Think laterally.

Finding the frequency

If you're feeling the need to lacerate some enemy instalments with needlessly heavy firepower, here are some passwords for Gamesware's recent release, *Wavelength*, sent in by Nathan Atkinson.



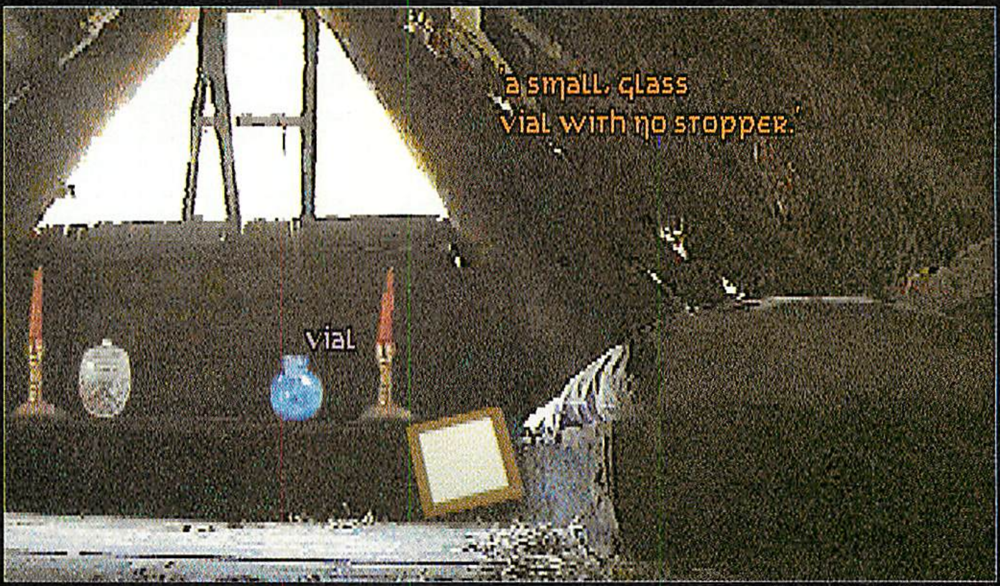
ONE	QUICKEN
ANDROMEDA	ZEUS
KEEPER	HADES
FRENZY	ATTRADES
VALHALLA	FORTIFY

Finally, you might want to try using the password BANANAS for some unusual extra firepower.

PC compatibility

Thanks to Alex Card for writing in – he's wondering how the advent of the surprisingly affordable PC card for the Risc PC will affect games coverage in the Game Show. As far as I'm concerned, I'll only mention games 'from the other side' if they're particularly memorable. However, Alex did suggest an idea which, with your help, I'd like to implement.

On the subject of software compatibility, the Acorn information sheet states that 'some PC applications that make unwarranted assumptions about PC hardware may not run'. If there's a type of software that's most prone to making these assumptions, it's the arcade game. Alex has suggested that the Game Show compiles a list of games that work with the new PC card, and this is where I need some assistance. I'd love to test each product personally – however, I have a feeling that it's a little bit beyond my capabilities. If you've got a hardware emulator and you've got access to any games to test, please drop me a line with the results, stating the type of your PC card and how successfully it runs. If you've got access to the Internet, you may find it easier to send your findings in by e-mail – the address is given at the end of the column.

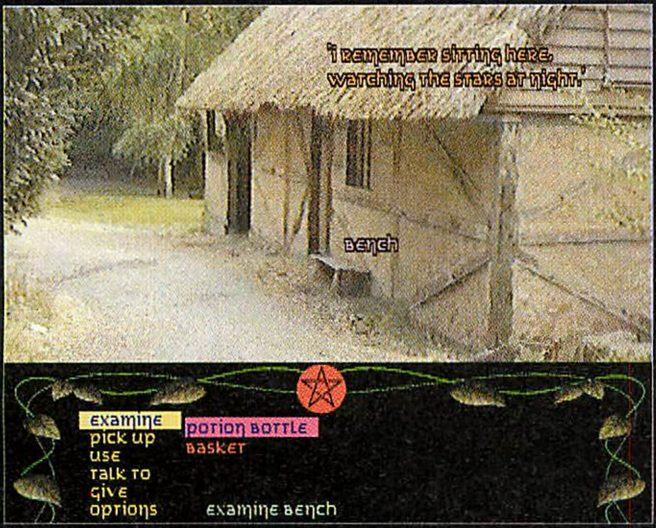


Power to the programmer

Alex has also suggested that we run a few more features on up-and-coming programming teams, which is something I've been wanting to do for a while. I've made a start and you should see the results over the next few months, but I'd love to hear more from you. If any of you out there have been slaving away over a game and are willing to tell the Game Show how you did it, please write in and let us know.

After hearing the news of *Quest*'s impending 32-bit conversion, Alex has asked me to suggest two more candidates, *Exile* and *Firetrack*. Well, I can inform you that you could see one of those sooner than you think, but I can't give the details away just yet. Believe me, I'm eager to get my hands on it.

While I'm on the subject of conversions, I've just heard a piece of news that should raise a few smiles. It concerns a recent Acorn hit and its imminent conversion to the 3DO multiplayer, and is conclusive proof that there's a lot of raw talent out there just waiting to hit the bigger formats. I'll check my sources and bring you the full story next time.



The shots on the next two pages are all taken from *Detritus*, and show just how good the graphics in an adventure game can be.

Angels and Daemons

I've just downloaded a demonstration version of a game called *Detritus* by a team named Myndgaemz. Apart from having the ability to twist syllables into particularly unusual shapes, they also seem to have a pretty hot product on their hands.

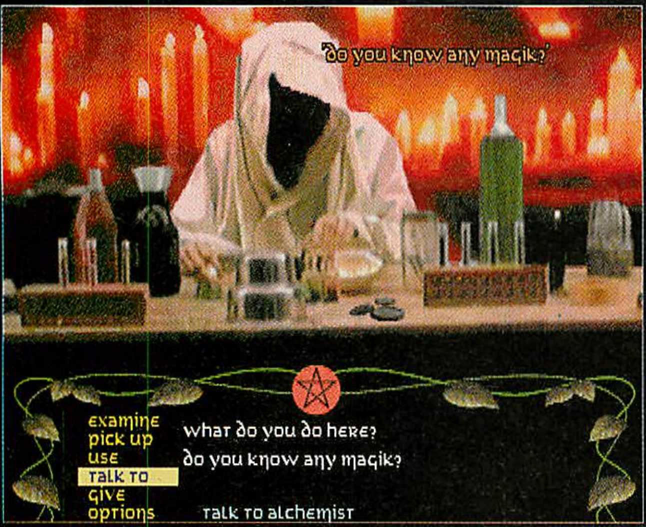
It takes the form of a graphical adventure game, with a point-and-click interface along the lines of that in *Simon the Sorcerer*. However, whereas the pictures in *Simon* consisted of hand-drawn cartoons, the graphics of *Detritus* are all digitised photographs, and the effects are stunning. In the demonstration you're treated to lavish first-person views of a mediaeval village, including a particularly mysterious alchemist, a market stall and, of course, the local inn. All have a good degree of realism, and perhaps because they're photographs, it's much easier to get drawn into the gameplay. In *Simon the Sorcerer*, you control his movements as an outside observer, but in *Detritus* you feel as if you're actually there.

Bearing in mind that I've only seen the demo so far, I'm unable to reveal much about the plot – however, I believe the storyline revolves around Nikki's search for her loved one, Toni. He's been spirited away by denizens of the netherworld, and Nikki must battle against the Daemons in order to be reunited.

If you'd like to see *Detritus* for yourself and you've got access to the Internet, there's a demonstration version available via ftp from ftp.lasermoon.co.uk in the directory *pub/games/Myndgaemz* – it's available via anonymous log-in. You can also contact Myndgaemz by post at 18 Mallory Crescent, Fareham, Hants, PO16 7QA. I'll be back next month with more details.

The wish list

I don't intend to do this often, but I'm feeling strangely optimistic this month. I thought I'd share some of my hidden desires



with you in the hope that they might be fulfilled sometime soon.

Anyone who knows me will realise that I harbour an almost incurable obsession with pinball – a game that isn't particularly well-represented on the Acorn. Simulators such as *Pinball Dreams* have been written for other home computers, but we've not yet been fortunate enough to catch a conversion. It's easy enough to write a game that bounces a ball between a few bumpers, but capturing the actual feel of a pinball table is particularly tricky – you don't feel the flick of the flippers, the thump of the components or, indeed, have to constantly feed the machine with cash.

After battling with the maths of oblique impact, it's all too easy to forget the design of the table and go for the 'three bumpers in the middle of the table' style. However, this kills the game before it's started – pinball tables have set objectives, normally culminating in a manic multiball session with hyperactive bumpers, increasingly unusual noises and hundreds of flashing lights. Without these goals, a lot of the gameplay disappears instantly.



I should say that I'm aware of at least two people attempting to code simulators, and I wish them the best of luck. I've been mentioning *Doom* a lot recently, and with good reason. Three dimensional action games have been hitting the PC with ever-increasing regularity and the quality and speed of the products is still on the increase. *Wolfenstein* introduced the idea of the rotational shoot-em-up, and *Doom* brought the idea up to date by utilising the extra power of the computers to slap atmospheric graphics over everything. The PC market has recently seen related products such as the Star Wars variant *Dark Forces*, and *Heretic*, which has its roots in the 'swords and sorcery' style – and both are proving to be popular games in their own right.

Wolfenstein has already made it across to a warm reception in the Acorn market, but what of the newer titles? Will we ever see conversions reach the Acorn? I sincerely hope so – these games are increasingly being used as a form of benchmark. If a computer is capable of processing the complex graphics required to make these three dimensional games possible, it will also be capable of performing the calculations necessary for serious applications such as spreadsheets or databases. The faster the game runs, the higher the resolution, the better the sound – all these point towards a machine that has a higher capacity for less trivial uses. In short, a game like *Doom* would be an excellent indication of how powerful Acorn's latest machines are, and one that's instantly recognisable to countless numbers of gameplayers across the country.

The major problem, as one might suspect, is that of cash. The licenses for these major games cost ridiculous amounts of money, so whoever wants to convert them has to have good financial backing – in the Acorn market, it's perfectly possible that the profits made from selling the conversion wouldn't cover the fees that some companies demand.

Fortunately, we've got Frank Isidor working on his own interpretation of the genre, and *BioHazard* should be released soon. I'm looking forward to giving it a test run, and I'll report with the details as soon as I've torn myself away from it.

And Finally

That's all I've got space for this time – it's been a little dry recently but I suspect that things will pick up with the Harrogate Spring Show. Oregan has promised me a sneak preview of some of its future products, so I'll grab my joypad and see what it has to offer. See you next month.

Steve Mumford



It's good to talk

If you want to contact the Game Show to provide us with hints, cheats or nuggets of information, here's how you can do it. The postal address is: Game Show, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP.

If you're fortunate enough to have Internet access, you can e-mail me using HAL@acornusr.demon.co.uk.

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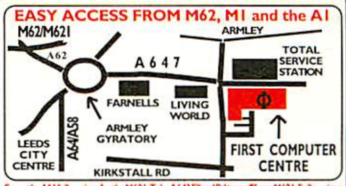
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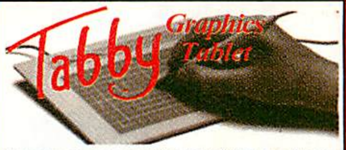
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Run the RISC

In part two of Mike Cook's hardware series, we actually get round to making something after all that fiddling about with bits on the printer port.

Well, last month in Run the RISC, I talked about the printer port and how it was the most universal way to connect things up to today's computers, but we did not actually make anything. As this is really a *hardware* series, let's rectify that this month.

Transition board

One approach is to simply make up a lead and socket for each project you make, with the appropriate connections. While this is fine if you know what you are making, it is not so good for experimenting and feeling your way around the subject. However, it is very good for using up a lot of 25-way D-type plugs. Therefore, one of the first things I like to make is a transition board, which is simply a way of getting all those lovely wires from the back of the computer to the front. It has always struck me that computer manufacturers are a bit ashamed of the actual hardware and always try to hide it round the back of the box where it is awkward to get at. This is especially true if your computer is against a wall – like most of them. You have to get into all sorts of contortions to try to get the plug aligned.

Come to think of it, I suspect there must be a conspiracy between computer manufacturers and the plug manufacturers. If something is hard to plug in there's more chance of bending the pins, so you'll need to buy a new plug. In the days when I made my own computers the connectors were always placed on the front of the box.

To make life easier therefore, I would like to start off by showing you how to make a simple transition board so you can easily get at the computer's signals.

Chock blocks

One of the best ways to make a temporary connection is by using screw terminals. Not only are wires easy to connect and disconnect, but you can also gain quick access to the signals from the screws on the top. There are two types: those with a double screw for each connector – the so called 'chock block' – and those with only one screw and a solder lug. These are called, rather unimaginatively 'screw terminal connectors'. On the other end you have the 25-way D-type plug and with these there is a choice of two basic types, solder and IDC.

IDC stands for Insulation Displacement Connector and this is the type used for making ribbon cable connections to all 25 pins at once. What happens is that there is a sharp pointed cutter on each pin and this cuts through the insulation in the ribbon cable and clamps itself onto the wire. This clamped or crimped connector is actually quite a robust connector and it is a very quick way to make a lot of connectors. This is fine if there is going to be another IDC plug on the end, but involves having a 25 way D-type

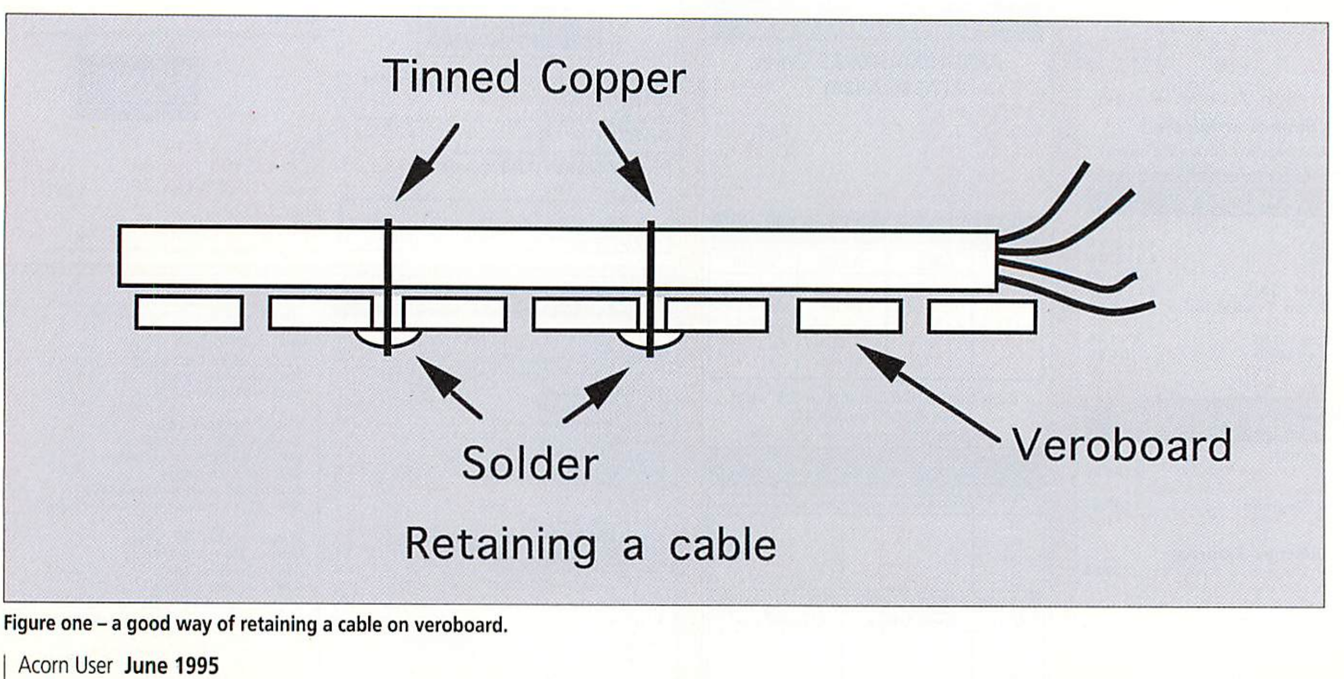
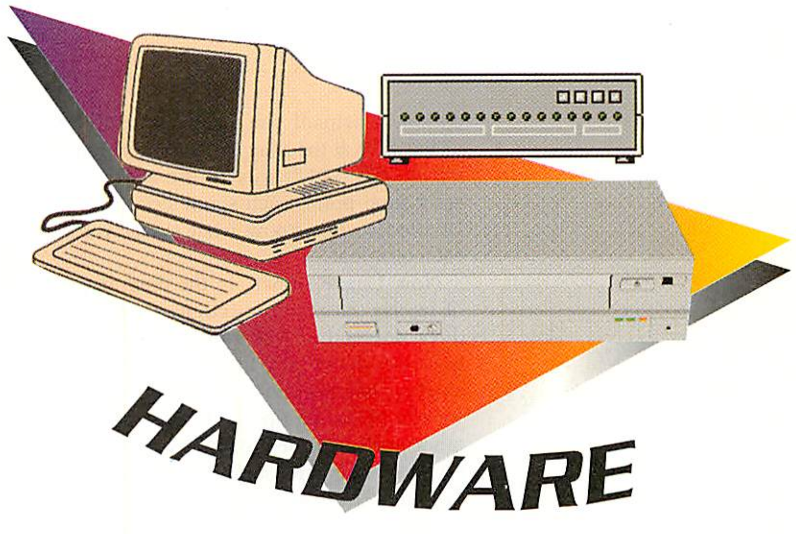


Figure one – a good way of retaining a cable on veroboard.



socket on the transition board and it quickly gets expensive. An alternative would be to tease out the wires from the free end and solder them directly to the screw connectors. While perfectly possible, this approach is quite fiddly trying to identify which wire belongs to which connector, and furthermore the soldered joint has little support. For these reasons, this technique is best done with the double-screw chock blocks.

Therefore, what I propose to use is a solder D-type plug and two nine-core cables. I used two here because I had nine-core cable to hand and it is less bulky than 18-core cable. This is wired to the solder cups on the back of the 25-way plug; you can see on the back of the plug there is a small number printed against each cup labelling the pin. If your eyes aren't up to seeing anything that small then an ordinary domestic scanning electron microscope should help.

Problems with soldered joints

At the other end I used a piece of Veroboard to hold the screw terminals and the cables; this is most important as you should never flex a soldered joint. If you have some multi-stranded wire and make a soldered connection to anything, the solder wicks up the strands for a short distance and joins all the strands together. Then, when the wire is flexed, all the bending occurs around this soldered point. The result is that a single spot on the wire is subject to all the strains and pretty soon succumbs to metal fatigue and snaps. It will work fine in the short term but over the long term it is bound to snap.

This is why IDC connectors are so good. As the wire is clamped into the connectors, minute amounts of movement are allowed to occur thus distributing the strain. This is the same effect as trees bending in the wind – those that do not bend will snap. This is why most flexible connectors are crimped on the ends, like the power supply leads inside your computer.

Unfortunately, it's not possible to crimp the wires onto the socket so we do the next best thing and restrain the cable. This means clamping the cable so that all flexing is mainly stopped at the clamp. At the plug end this is done for you, with the cable clamp on the plug's back shell, but at the board end you have to do it yourself. The best way, I think, of using screened cable is shown in figure one. What you do is lay the cable on the Veroboard and put a tinned copper wire link around it. Take a pair of pliers and twist the two ends together on the underside, giving a moderate pressure on the link. Make a second retaining link about four to five holes back and on the underside, solder the links to the copper track and trim off the excess wire. As you solder, the heat will slightly melt the insulation around the cable and pull in due to the pressure in the twist. The screening on the cable will prevent the tinned copper from melting into the connecting wires. The result will be a perfect strain relief system capable of holding the cable steady under all but the most deliberate attempts to dislodge it.

Connecting and labelling

You can wire up the cable to the individual screw connectors as shown in figures two and three. You will notice that I have used a 12-way screw connector along with two three-way connectors. This is because this type of connector is only available in 12, four, three and two ways. I could have used other combinations – five three-ways, for instance – but this is the cheapest

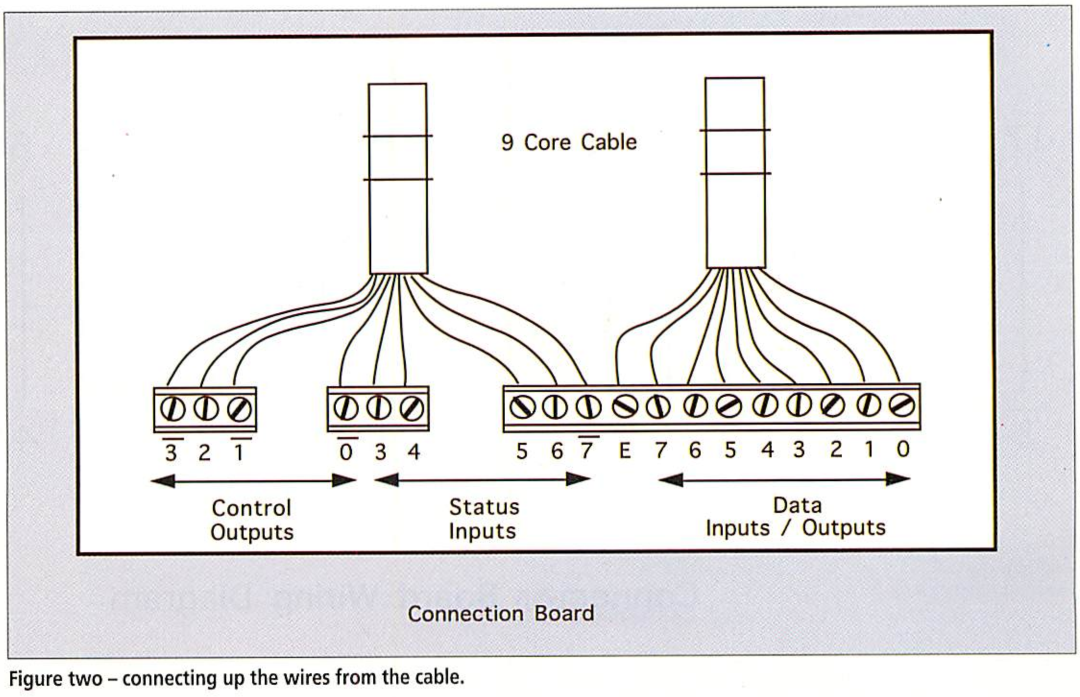


Figure two – connecting up the wires from the cable.

The finished connector gives easy access to the printer port inputs and outputs.



option. It helps if you make a note of the colour of the wire at the plug end and then you can easily identify which wire to use at the board end. As a final point, each screw connector must be labelled so you know what signal you have on each terminal.

Now I have shown, in the diagram, one way of laying out the connections. The actual order does not matter but note the labels; the data lines are shown as 0 to 7, which is all very well as they correspond to bits 0 to 7 in the byte written to the data port. However, there are two other ports as I mentioned last week. The status register is all inputs and the control register all outputs. Now, if you look in the back of the Welcome Guide these lines have names, all associated with interfacing a printer.

For our purpose this is not very helpful; what we need to know is what bit of what port we are dealing with. Therefore, I have labelled them with a bit number for either the status or control. In addition, I mentioned last month that some of these lines are inverting, that is you read the opposite logic level to that on the line. In order to indicate these, I have placed a bar over the appropriate bit numbers. In this way there is a clear correlation between what we are doing with the software and how it relates to the hardware.

If you only have the older single direction printer port then you are still best making up the whole board. True, you don't need all the control lines and most of the status lines, but it will be useful when you upgrade to a new computer.

We have just about got time to test the system out using the printer port monitor program on last month's disc. The simplest way is to allow the computer to provide its own input and output to test. So let's wire one of the outputs to one of the inputs, say data bit 0 to status bit 6. Now go to the Desktop and click on data bit 0 – you will see status bit 6 change at the same time. I'll freely admit that this is not the world's most exciting test, but it shows that the whole thing is working.

You can test all the outputs like that, connecting them up to bit 6 of the status register in turn. Now, connect an output to bit 7 – note as this is an inverting input you will have the inverse of the output appearing at this bit. If you have a bidirectional port you can try switching the data port to an input and monitor the control outputs with this.

However, it is important to make sure you have switched the port to an input before connecting the lines, because connecting two outputs together is not usually a good idea as it could just possibly cause some damage. Most of the time you will get away with it, but it is not a good habit to get into.

Now for something a little more interesting. The printer port signals have sufficient power to light up an LED directly without needing any drivers. What you need to do is to connect the cathode of the LED to earth – this is normally the short lead on a new LED or the wire next to the small flat on an LED you have used before. Connect the other LED leg to a resistor between 100R and 330R – by the way, 100R is pronounced 'one hundred ohms'. Now all you need to do is connect the other end of the resistor to an output and you will be able to turn the light on an off simply by using Desktop clicks.

This is the first step in controlling and monitoring using a computer. Next month I will show you how you can incorporate this into your own programs. AU

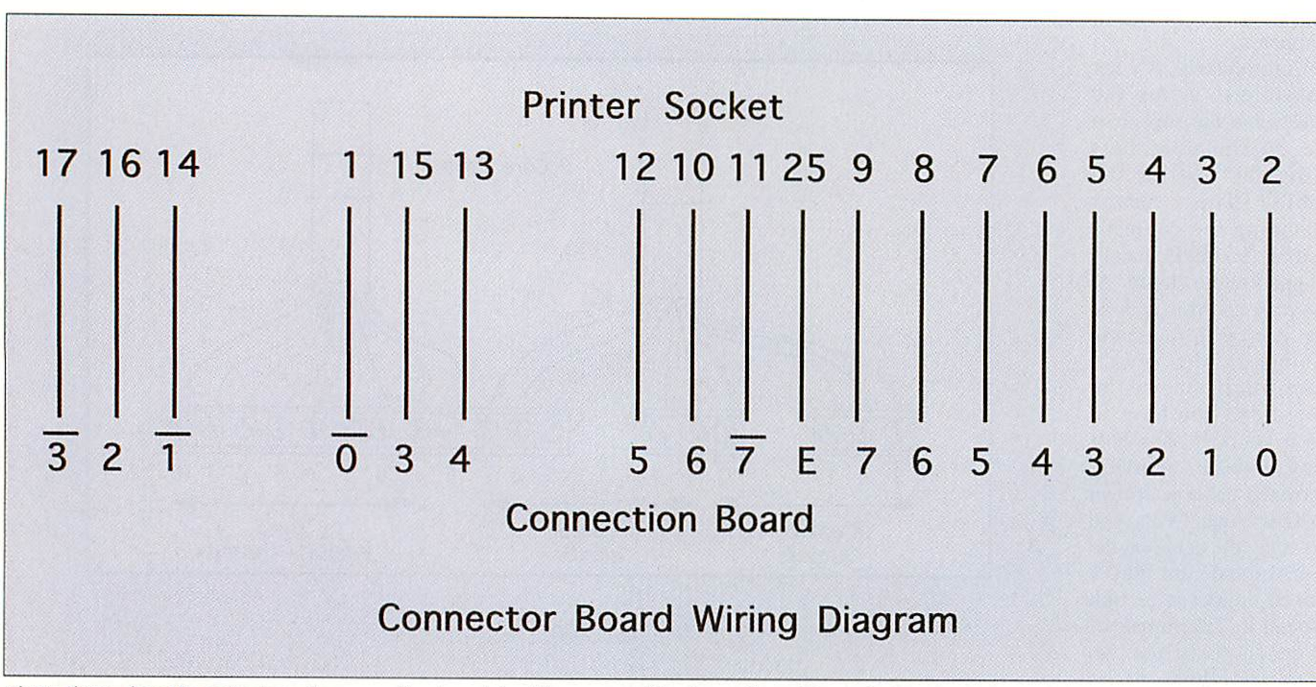


Figure three – how the outputs on the connection board should correspond to pins on the printer socket.

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Questions & answers

Disc labels on a bubble-jet, the best start in a career in programming, OPL on the Pocket Book II and splitting large files.

Q I use a bubble-jet printer, the Canon BJ-10ex. I also have a large collection of floppy discs with hand-scrawled labels. Then it occurred to me; why not print my disc labels with my printer? I currently use 70mm by 49mm labels from a roll, and I find this size ideal. I carefully cut off a strip of labels and fed them through my printer, only to find that the ink did not like them and seeped rather badly.

I therefore scoured all the stationery catalogues that I could lay my hands upon to find A4 sheets of labels of this size suitable for use with a bubble-jet printer. I could not find any. The nearest I got was from Avery, who manufactures a full-size label – that is, the sort of label that folds over onto the back of the disc. I dislike this type of label quite intensely, so I gave up.

I would be grateful if you know of any supplier who could supply me with A4 sheets of self-adhesive labels, approximately 70mm by 49mm, designed for use with ink-jet printers.

Wijand Thompson
Sandy

A I'm not aware of any labels which exactly fit your specification – though I would welcome hearing from anyone who has found any – but Avery does a label which is roughly the same size. The Inkjet label J8161 is 63.5mm by 46.56mm, and therefore fits comfortably on one face of a floppy disc.

There is an equivalent L7161 label sheet for users with laser printers. It is important to use the appropriate sheet for the labels being printed, because the internal printing engine of a laser printer gets hot enough to melt the backing on inkjet labels, causing them to peel off and jam inside the printer – expensive.

Q I will soon be leaving school and I am desperate to program on Acorn machines. I have looked at my local colleges nearby and have not found any computer programming courses to do with Acorns. At home, I have the PRMs and other manuals. Do you think that it would be best if I just read all the manuals word by word and tried my best to understand them? I consider myself to be a a fair BASIC programmer.

Do you know where I can get any Acorn programming courses in a 20 mile radius of my town? Do you know anyone who gives good lessons?

When I grow up, I want to be an expert programmer. I would like to make really good games like *Star Fighter 3000*, *Flashback* and *Simon the Sorcerer*, for example. I have always liked and admired Acorns. Please do not give me any information about PCs – I am devoted to the programming of Acorns.

Andrew Wyatt
Swadincote

A If you are serious about making your living as a programmer then you should do a general course in programming, not tied to one specific platform. I do not know of any college courses which specifically teach programming on Acorns.

There is a very good reason for this, which is that there is little point in any course teaching students to program on only one sytsem. True, courses may use a particular type of computer for students to learn on, but the programming techniques taught will be much more general, and applicable to programming all different types of computer. For a career in programming, this is what you need.

It is worth considering that both *Flashback* and *Simon the Sorcerer* were originally written on other platforms and converted to the Archimedes by experienced programmers. Many of the techniques used in these games are general ones applicable to any platform.

Many talented programmers are pretty well self-taught, but tend not to have 'read the manuals word by word'. They have a basic aptitude for programming, referring to the manuals to find specific answers to questions such as 'how do I open a window'. Trying to teach yourself from the PRMs would not be a good idea; they are designed as works of reference, not tutorials. If you read them word for word, you would fill your head with irrelevent detail, and be totally ignorant about how to write a structured program, or a fast graphics routine, or a decent memory

Advice sought and given

Mr Vincenzi of Colchester has written to say that although the book *A Beginner's Guide to WIMP Programming* is now out of print (as mentioned in last issue's Q and A) it is still available from at least one stockist. He has tracked it down in: Computer Manuals, 50 James Road, Birmingham, B11 2BA, tel: 0121-706 6000.

Phil Cook of Luton writes: 'I would like to take out insurance for my computer equipment. I have looked through *Acorn User* but have not found any insurance advertisments. Do you have records of previous advertisers of such insurance or can you point me in the direction of an insurer specialising in computer insurance: normal high street brokers aren't usually interested in specialist policies.'

We would be very interested to hear from any readers who know of any specialist insurers who do a good price for computer equipment. Many insurers will insure computer equipment as part of the house contents insurance at no extra cost – be sure to say if you have a desktop machine rather than a portable, as this then counts as 'furniture' with some insurers and is not then subject to the individual limits set on electrical items. The key point here is to check – there is no point in finding out that you weren't insured after you make a claim.

manager. Books on how to do this do exist, but they are not Acorn-specific, because the topics themselves are not Acorn-specific.

On the plus side, the Acorn is an excellent machine to learn on, with its built-in BASIC interpreter and Assembler. It lacks powerful development tools, but the amateur programmer doesn't need them, particularly one who would like to write his or her own routine to put an icon on the icon bar, rather than use one someone else made earlier.

My best advice is still either to find a computing course that will teach you how to become a good programmer regardless of operating system, or to persue a course in something else – maths, biology, history – and keep up your computing as a 'hobby'. There is a great future for specialists in all fields who are also computer-literate, and having another interest can be a bountiful source of inspiration when writing software.

Q Since receiving a Pocket Book II for Christmas, I came across the *Program* application, allowing me to program in OPL. Could you please point me in the direction of a good book explaining how to use this language.

Duncan Roberts
Aigburth

A Psion sells a book called the *Psion series 3a Programming Manual*, which serves equally well as a manual for programming the Pocket Book II. It is very well-written, and covers all you could need to know, from simple OPL programs to print 'Hello' through to full-blown applications that use windows and menus. All you need to remember is that the Psion key on the 3a is the Acorn key on the Pocket Book II, and you're away.

To anyone familiar with BBC BASIC, OPL is very easy to learn. All the complicated aspects of menus and dialogue boxes are handled by the operating system using simple functions.

As an aside, while the OPL editor built in to the Pocket Book is perfectly usable, anyone with an A-Link will probably find writing large programs easier using *Zap* or *Edit* on the Archimedes and downloading the source code to the Pocket Book for compilation.

***The Psion series 3a Programming Manual* can be bought direct from Psion for £6 (cheque or postal order only), which is incredible value for such a useful book. Psion's address is 85 Crampton Street, London NW8 8NQ, tel: 0171-262 5580.**

Q I have a problem with some of the software bundled with a recently purchased Risc PC. In a subdirectory labelled *Video* there is a selection of Replay samples which, seen in full colour, are really impressive examples of what is achievable using Acorn hardware and software. I would like to preserve these, for preference on floppy discs.

With the Archimedes A310 which I used to own, files of a similar size would not have posed a problem, because I had a backup utility from a PD library. The utility worked faultlessly with RISC OS 2. Regrettably, Acorn did not see fit to provide backup software for the Risc PC.

The problem is exacerbated by the existence of only a very small selection of overpriced commercial products, which the dealers to whom I confided my problem offered to sell me. Am I being unreasonable in complaining about what is a very serious omission in RISC OS?

My problem is essentially this:

1) Replay files as supplied are all greater in size than the 1.6Mb available on 3.5in high density floppy discs.
2) Compression software like *Spark* and *ArcFS* will not adequately compress Replay files.
3) The backup program which I used with RISC OS 2 seems unable to cope with floppy discs larger than 800K, and seems unable to cope with Replay files at all.

I hope that you can provide an inexpensive solution; on a DOS system a backup program would have been provided as part of the operating system.

G T Swain
Edgeware

A On the assumption that Acorn is not about to write support for this into the OS, there are a number of alternatives.

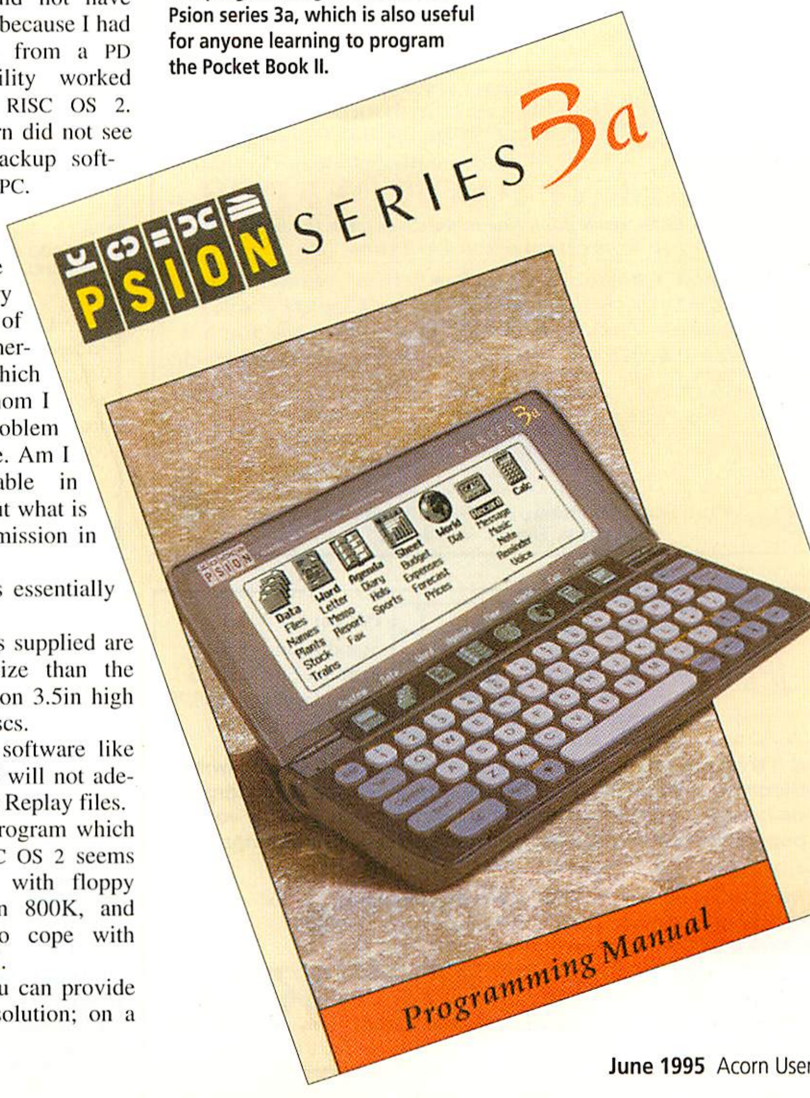
Uniqueway (01222 644611) markets a product called *Splitter* as part of its *Empire* Replay editing suite. Although *Splitter* is not available separately at the moment, Uniqueway is looking at the possibility of making it available as a stand-alone product for between £10 and £15.

There are a number of PD and Shareware packages which will also do what you require. Andreas Schubert's *HDBackup* will transfer the contents of your hard disc or any part thereof onto floppy. It should be available from PD libraries and may be downloaded from hensa.

For a slightly more all-singing, all-dancing program, try *ClickBack* by Steve Spry. A cut-down version of this is available from The Datafile (01934 823005), but the program itself is Careware. This is a special form of Shareware where all proceeds go to charity – in this case, the Cancer and Leukaemia In Childhood trust (CLIC). The registration fee is £10, and should be sent to Steve Spry, 36 Moreton Avenue, Bideford, North Devon, EX39 3AY.

Do not lightly dismiss the capabilities of *Spark*. David Pilling's *SparkFS* will UUencode files (Shift-drag them to the icon) splitting them into chunks of a given size as it does so – perfect for what you want. It will then reassemble the separate pieces automatically. David Pilling's address is: PO Box 22, Thornton Cleveleys, Blackpool, FY5 1LR AU

The programming manual for the Psion series 3a, which is also useful for anyone learning to program the Pocket Book II.



Absolute beginners

Windows come under scrutiny in this issue, as David Matthewman continues his guide to Acorn computers for novices.

Windows are one of the two main ways in which you communicate with programs – the other being menus. A window is a rectangular area of the screen 'owned' by a particular program. The program can use it to display information, or you can type into it, draw on it, click on various buttons and so on to pass information to the program. A selection of windows is shown in figure one.

The top left window in figure one is the familiar Filer window, used by the computer to display information about the contents of discs. The blue icons are *directories*; 'folders' on the disc containing groups of files. Double-clicking on one of these with Select will open another window showing the files in the directory. The other icons are *applications*; programs which may be run by double-clicking on them. (Filer operations will be covered in more detail in a later issue.)

The bottom left window is from the spreadsheet *Resultz*, and shows a window into which information may be typed – the window also has a number of icons to perform operations like centering text, inserting formulae and so on. The window above the caption is a standard information window as produced by most applications.

Control icons

As you can see, the detailed design of the windows varies, but most have a number of *control icons* round the edge to manage things like closing, moving and re-sizing the window. These are shown in figure two:

Back icon: this icon moves the window behind any other windows on screen. Windows on the Desktop are arranged in a *stack* which gives the windows an order. A window which obscures any other windows is said to be at the *top* or the *front* of the stack

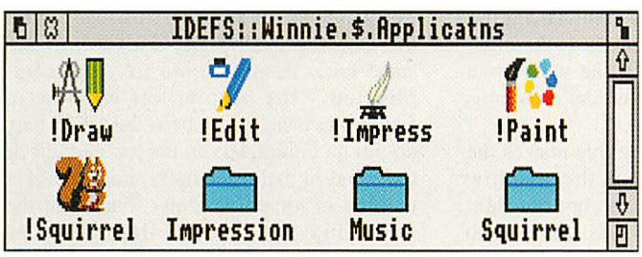
If you have come to the Archimedes from another computer such as the Mac, it is important to realise that the parts of the window which are still visible are completely accessible using the pointer, without having to bring the window to the front. If you need to bring the window to the front, click with Select on the title bar or the resize icon (see below).

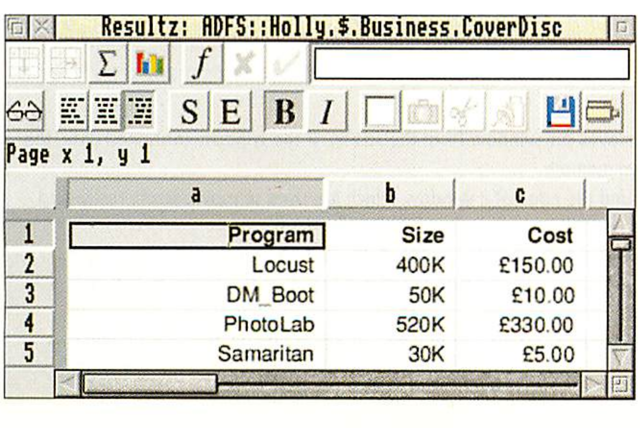
Close icon: this icon closes the window, removing it from the screen. If it is a window containing data – text or a drawing for instance – the data will usually be removed from memory as well. If you have saved your work to disc this is not a problem, but any unsaved changes will be lost. Most programs will warn you if you try to close a window containing unsaved data, and give you a chance to save the data before continuing.

If you click on the close icon of a window containing a file or a directory display with Adjust, the computer will attempt to open the Filer window containing the file or directory. If you Shift-click with Select – except in the earliest operating system – the window closes but leaves an icon on the background of the Desktop which, when clicked upon, will re-open the window.

Closing all the windows belonging to a program does not remove a program from memory if the program has an icon on the icon bar – the light grey bar along the bottom of the Desktop – but may otherwise. For instance, the *Chars* program supplied with the computer is removed from memory if its window is closed, whereas this is not true of the *Help* program, which has an icon on the icon bar.

Not all windows have a close icon. Many should be closed by clicking on one





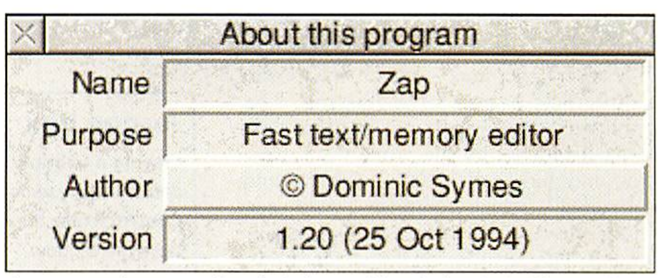


Figure one – three examples of windows. Although they look different, they have many things in common – the icons round the edge, the main work area. The windows are from different generations of the Archimedes operating system: the top left window is from an old RISC OS 2 machine, the bottom left one is RISC OS 3 with Acorn's *NewLook* 3D icons and the one above has the textured backgrounds and outline fonts of RISC OS 3.5, on the Risc PC.

of the buttons in the window – usually one marked 'OK' or 'Close'. A 'Cancel' button usually closes the window without saving any changes that have been made to it – this may, in some programs, be what the close icon does as well.

Title bar: this contains the 'title' of the window – usually related to what the window contains. If the window has data from a file which is being edited, the title is usually the name of the file. If there are any changes to the data which have not been saved, the name will have a '*' character after it to warn you to save the data before closing the window.

Dragging (holding down a mouse button and moving the pointer) in the title bar moves the window around the screen. Dragging with Select moves the window to the front (so that it obscures any other windows on the screen); dragging with Adjust keeps the window's position within the stack.

Note that it is possible to move or resize windows as filled-in objects or as outlines. The former enables better accuracy for positioning, but the latter is quicker, especially on machines with a slower ARM2 processor. This setting is changed by using the *Configure* program supplied with the computer – Risc PC owners should run the *Boot* program (double-click with Select) on their hard disc.

The toggle size icon: you can change the size of many windows; squash them down to a small corner of the screen in order to get several windows on screen at a time, or expand them to cover the whole Desktop. The toggle size icon switches between the current window size and the largest size possible. The icon also changes to reflect this. Not all windows have this facility, and 'full size' is often not the full screen area.

Usually, a toggle size icon only appears in a window which also has one or two scroll bars, but sometimes a window with no scroll bars will have one. This is often used for dialogue boxes, where the smaller window contains 'simple' information and the full one 'expert' information.

The scroll bars: these are made up of several icons. In order to work out what they do, it is important to realise that a window may only be showing a small part of a much larger area – one or two files in a directory, or part of a drawing. The scroll bars show which part of the area is being displayed by the window. A window may have up to two – vertical and horizontal – which comprise a pale grey slider moving on a darker grey background. The position of the slider shows which part of the area is being displayed and its size, relative to the size of the scroll bar, shows what proportion of the total area is visible in the window.

At either end of the scroll bar is an arrow icon which scrolls (moves the contents of) the window in a single 'step' when clicked upon by Select, or scrolls continuously when Select is held down. Adjust works in the same way, but scrolls in the opposite direction.

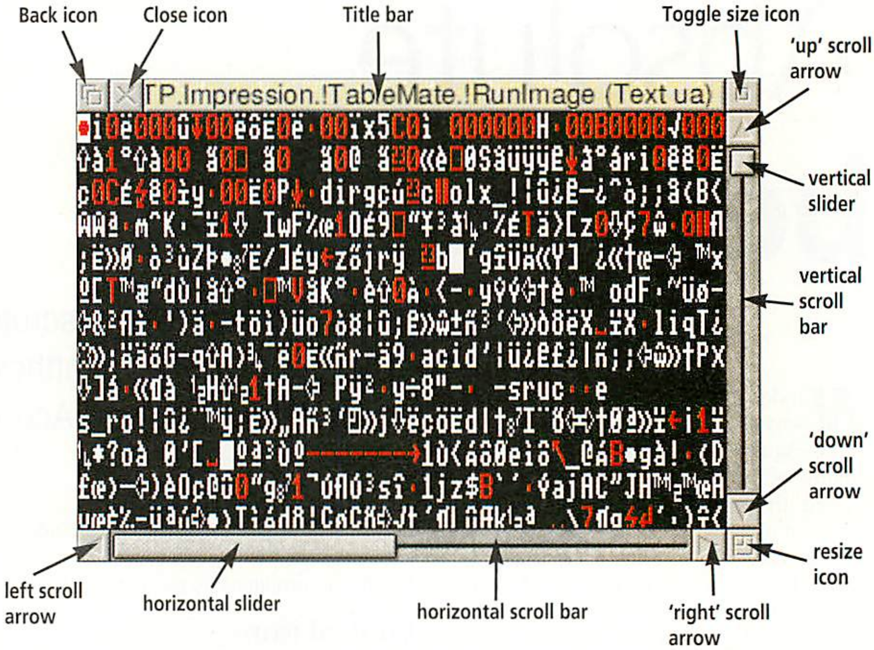


Figure two – a typical window with all the icons labelled.

If you click in the background of the scroll bar, the window will scroll by one 'page'. As with the scroll arrows, Adjust scrolls in the opposite direction.

Dragging the scroll bar allows you to position which part of the total area the window is looking at in one go. As with dragging the window, you can set the computer either to update the window as the slider is dragged or to drag the slider as an outline, only updating the window when the drag has finished. Dragging with Adjust – not on RISC OS 2, the older operating system – scrolls the window in *both* the horizontal and vertical directions from either scroll bar.

The resize icon: dragging this resizes the window. The top-left of the window remains where it is and the bottom-right (the icon) moves, unless this moves it to the right-hand or bottom-edge of the screen in which case the top-left of the window may move instead (this depends upon the operating system).

Tutorial on the cover disc

On the cover disc is a small program *Beginners* which does nothing more than open a window containing the *Acorn User* logo. This window has all the control icons, and you can practice moving, scrolling and resizing the window. When you have finished, close the window which will quit the program. You can also Shift-click on the close icon to turn the window into an icon on the background of the Desktop.

You should now be able to confidently use windows on all programs that run on the Desktop – all pretty well follow the same basic design. Some are more complicated – the bottom left window in figure one is an example as the scroll bars do not go completely to the top and left of the window being actually made up of a number of joined windows, but as all the individual elements will behave as expected, this shouldn't cause big problems. AU

Jargon box

Closing a window: this removes the window from the screen. If the window contained data, the data is usually removed from memory.

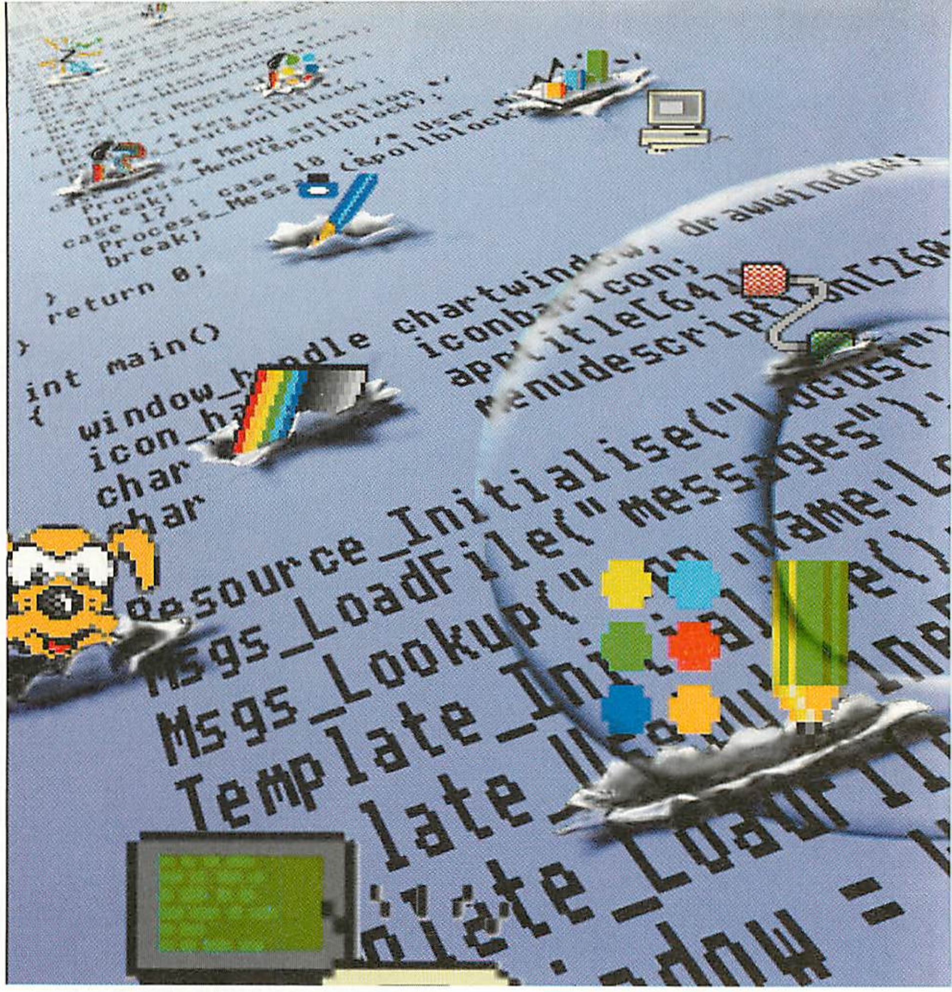
Control icons: the icons round the edge of a window which are used to move, scroll, resize and close the window.

Scrolling: changing the part of a document, list or file display which a window is showing.

Stack: the order that windows appear on the Desktop; the window at the top of the stack obscures all other windows.

Title bar: the bar across the top of a window giving the window's 'name'. Dragging this moves the window.

Programming



JACK KREINDLER

C

Steve Mumford continues his investigation of the methods of input and output.

Last month we looked at the functions printf() and scanf(), along with the basics of file handling. I'll fill in some more of the details this month, and I'll start by introducing a couple of functions that are specifically for printing strings.

gets() and puts()

Although you can use scanf() to input a string from the user, it's probably not the best function for the job since it will stop reading after it finds a white space character – in most cases you'll end up with only the first word stored in memory.

This isn't particularly useful as a method for entering long strings, so another function was devised – gets(). Before you can use it, you must have defined an area of memory that is large enough to store the string:

```
char string[100];
gets(string);
```

The first line sets aside 100 bytes of memory for a character array, and points string[] to the start of that block. The gets() function takes a pointer to an area of memory as a parameter, and stores the string starting at that address. Input is read from the keyboard until a carriage return character is detected, so this routine doesn't suffer the truncation problems of scanf(). The return character is not stored in the string, but the function does tack on a zero byte termination character to replace it.

However, it's still possible to run into problems. For instance, if you had only reserved ten bytes of memory and then attempted to store a string which was longer than that, sections of memory immediately after the array would be overwritten, probably culminating in a program crash. It's possible to include safeguards to protect against this sort of error, but it's still vital to remember the termination character – an array which is ten bytes in size can only hold a nine-character string, since the tenth character is needed for the string's zero byte.

In order to complement gets(), a function called puts() is supplied as part of the standard library:

```
char *string = "Hello, World";
puts("This is some text.");
puts(string);
```

It's simpler to use than printf(), but it doesn't allow you to print variables. Note that you don't need to include carriage returns at the end of the strings when using puts() – that's because the zero byte at the end of the string is translated into a return character when it is printed.

Loading and Saving

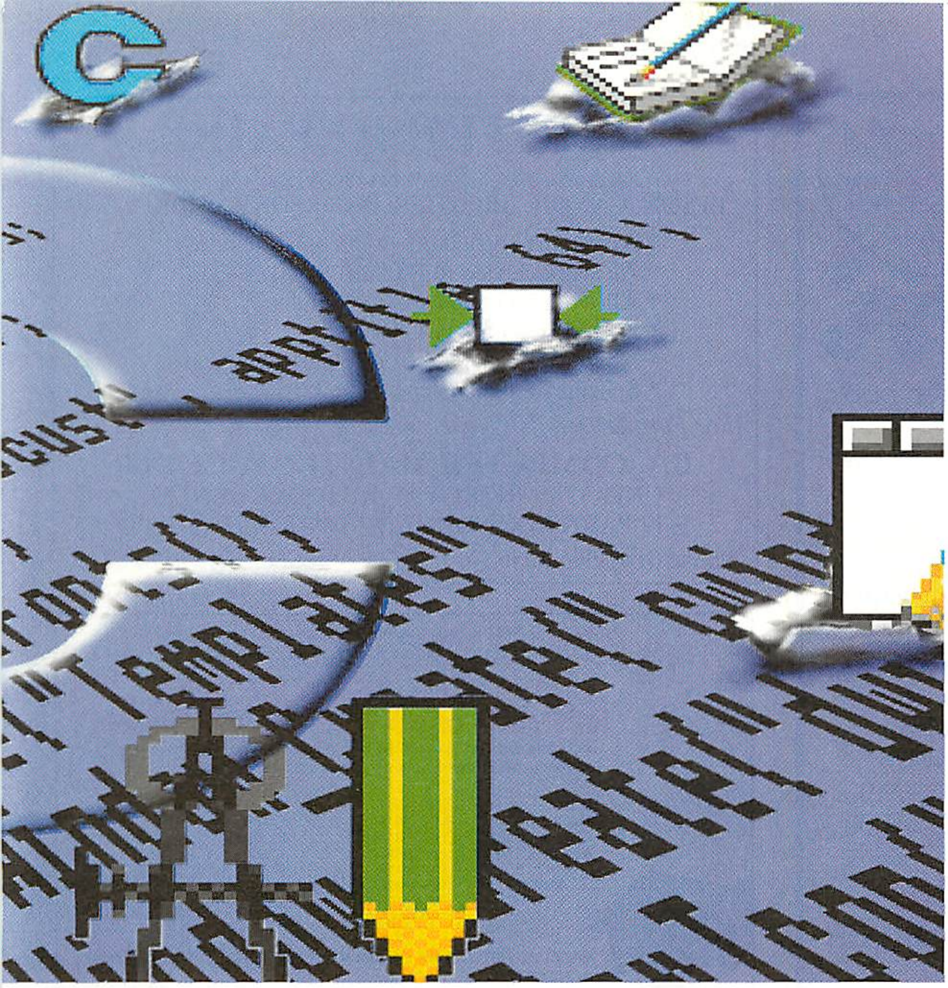
Last month we looked at the techniques of opening and closing a file, but we didn't get round to doing anything with it. I'll have to introduce two new routines before we can go any further, but due to some of the philosophies behind C, they bear a striking resemblance to functions you've already met. C treats all input and output as different files, so you can write to the screen, the printer or a disc in the same general fashion.

printf() automatically sends its output to a 'file' called stdout, and scanf() takes input from stdin – these are usually mapped onto the screen and the keyboard respectively, unless someone's crept up to your machine and redirected them. Because these 'files' are used so often, they're provided as standard by the stdio.h library, and they're always kept open. When writing to a disc you need to create your own file before you can use it, and that's what we were doing last month.

Since the destinations of printf() and scanf() can't be altered easily, we need new functions that take another parameter – one that specifies where the information is stored. We'll have a look at fprintf() first, which takes the same parameters as printf() with the addition of the extra destination argument:

```
FILE *pointer;
char *name = "filename";
pointer = fopen(name, "w");
fprintf(pointer, "Writing to file: %s\n",
name);
fclose(pointer);
```

Last month, I briefly mentioned the modes with which you could access a file, but I didn't have space to explain how you specified which mode you wished to use. Firstly, you must decide whether you want to read from the file, write to it, or append data onto the end of it. These actions are given the letters r, w and a respectively. However, this is still somewhat restrictive, because in some cases you may want to perform both operations at once. An extra mode is supplied to deal with this, called *update*, and if you wish to use this you should add a + symbol to your chosen mode. Finally,



for yourself

you can specify whether the output is in text or binary format – the difference between the two is that the text mode only contains the subset of printable characters, and numbers are stored in their textual representation. In binary mode, the full range of ASCII characters can be saved and numbers can be stored in the machine's internal format. If you wish to use this binary mode you include a b in the mode string. A point to note is that the mode r+ opens an existing file for update, whereas the mode w+ creates one, erasing any files of the same name if they're already present.

Therefore, in order to save three numbers, the code might look something like this:

```
fprintf(pointer, "%d %f %d\n", var1, var2,
var3);
```

This saves an int, a float and another int in sequence to the file pointed to by pointer. It's important that the numbers are separated by a *white space* character – otherwise there's no way to distinguish between them when you read the numbers back in. In order to do the reading, you could use the line:

```
fscanf(pointer, "%d %f %d", &var1, &var2,
&var3);
```

fscanf() can actually return an integer value if required, and this corresponds to the number of data items successfully loaded. In the above example, there are three data items to be retrieved – if fscanf() returned with a value less than three, it indicates there was a problem with the load. When used in this way, the form of the command is similar to that shown below.

```
int n;
n = fscanf(pointer, "%d %f", &var1,
&var2);
```

When reading data, it's important to be able to check whether you've reached the end of the file, and that function is provided by feof(). This returns the value zero if the end of the file hasn't been reached, and a non-zero value if it has. The following code fragment reads a list of integers from a file pointed to by handle and stores them in an array. The loop continues until the program discovers the end of the file:

```
loop = 0;
while (feof(handle) == 0) {
fscanf(handle , "%d", &(array[loop]));
loop++;
}
```

The file handling we've done so far has been sequential – we've not been jumping about in the file while we've been using it. However, C provides facilities for random access which can be particularly useful if the file you're using is fairly large and you can't afford to keep all of it in memory at once. I'll have a look at these next time, and mention some of the more advanced methods of storing data in memory. AU

A few conversion specifiers for printf()

You've already met a few of the conversion specifiers that can be used in the control string of the printf() function – here's a more comprehensive list.

- %d or %i – These are used to display a decimal integer.
- %f – This is used to print a variable of float or double type in the form 12.34.
- %e or %E – These are used to print a float or double in exponential notation of the form 1.234e+01.
- %o – Used to print an integer as an octal (base 8) number.
- %x – Used to print an integer as a hexadecimal number.
- %c – Prints a single character.
- %s – Prints a string of characters. The string must be terminated by a zero byte.
- %% – This specifier should be used if you wish to print the % symbol.
- Strictly speaking, if you want to print the 'long' forms of int or float, you should add a lower-case l after the % symbol, using the forms %ld or %lf. Although not so important for printf(), it's vital when reading long ints and doubles as input, so the precision of the data isn't lost.

Acorn Customer hotline

Essential information for all Acorn users, compiled by Dave Walker of Acorn Customer Services exclusively for Acorn User.

Printers 1.28c

The latest version of *Printers*, version 1.28c, has now been released and is available from Acorn dealers and by anonymous ftp from ftp.acorn.co.uk. As many of you seem to be curious about the differences between versions, here's a summary.

Between 0.33 and 1.22/24

'Background' printing: This causes printing to be directed to a spool file, which is then sent to the printer as a background activity. Since not all applications support queuing, this feature will not work with all applications.

Spooling printer data to a file can result in very large files being created. It should be treated as a hard disc or network-only option.

Improved colour printing support: In addition to better colour rendition in 256 colours, the drivers now provide support for 24-bit colour rendition via a three pass system.

New and improved printer definition files: Drivers for the Hewlett Packard Deskjet 500C, 550C and 1200C are included.

Reduced disc swapping: For users of dot-matrix or Laserjet printers, the necessity to re-insert the printer driver disc has been removed.

Sensible default options: The PDFs will now load with more popular default options selected, for example colour printers will select colour.

Printing with Acorn Access: An option from the Printer Control menu allows the 'Shared' option to be selected if Access is installed.

Paper size editing: The 'Edit Paper Size' option selects the paper type configured for that particular printer driver.

Cancelling a print job: When the Escape key is used to stop a print job the printer manager will send a reset to the printer.

Loading PDFs: New PDFs loaded into the printer manager will now be automatically installed onto the icon bar.

New structure to *System*: *System* has been enhanced so that it can act as a container of shared resources for both RISC OS 2 and RISC OS 3 applications. If modules need to be released for specific versions of RISC OS then they should be placed in the appropriate directory, i.e. *System.310.Modules* for RISC OS 3.10 or later.

Note that if a module can be used by all versions of the operating system, it should be placed in *System.Modules*.

Between 1.22/24 and 1.28

No new functionality was added, but a number of subtle problems with the printer drivers were corrected.

Between 1.28 and 1.28c

The only difference between these versions is support for the Epson Stylus colour printer. There are two print modes on the Epson Stylus supported by new definition files; these definition files are *Stylus-Col* and *Stylus-Cmw*.

Stylus-Col supports standard print mode with resolutions up to 720x720 DPI. The default resolution selected is 360x360 DPI.

Stylus-Cmw supports MicroWeave print mode with print resolutions up to 720x720 DPI. The default resolution is 360x360 DPI. The MicroWeave mode seems to reduce banding significantly over the standard print mode.

If you wish to obtain a copy of *Printers* 1.28 and its associated application note by post from Acorn, please send a cheque for £10 inc VAT to the address below.



The Epson Stylus colour printer now has better support from Acorn printer drivers.

Reading foreign-format CD-ROMs

The majority of CD-ROMs are mastered to the ISO 9660 standard; one of the benefits of CD-ROM standards such as ISO 9660 is that it should be possible to access data intended for other platforms.

However, although the raw data can be accessed, it may not be possible to make use of it. The likely possibilities are that files of common formats, such as plain text and *ChangeFSI*-translatable graphic formats can be used; also comma-separated variable and tab-separated variable files can be used in applications which are able to import them. In addition, third-party programs which perform file compression (e.g. *SparkFS* from David Pilling) can recognise and decompress file archives of cross-platform formats, for example UNIX tar.

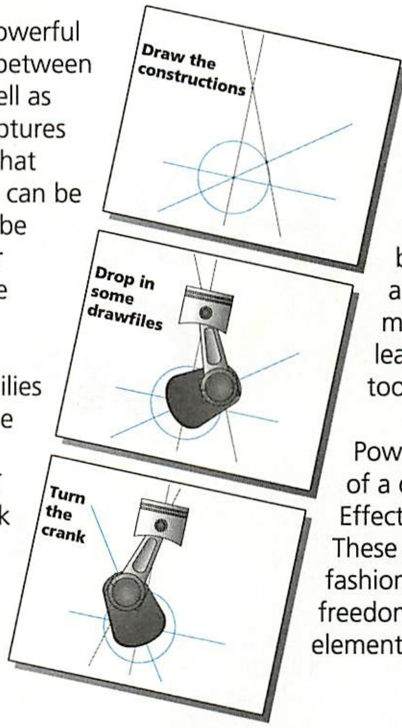
Problems arise when proprietary codecs are used in the software on the disc; as RISC OS cannot execute the code for the decompressors in the manner of the platform they are intended for, it is not possible to extract and make use of files encoded in these ways purely using RISC OS. As some discs use proprietary codecs and others do not, 'Your Mileage May Vary'; if you plan to extract data from a disc designed for another platform, check with the supplier of the disc that the data is in a format you can make use of. AU

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Parametrics

Parametric CAD systems can be used as powerful modelling tools. Think of them as a cross between a spreadsheet and a drawing board. As well as creating drawings, Apollonius PDT also captures the inherent design rules and constraints that control the drawing. Key parts of a design can be changed, and the rest of the drawing will be recalculated automatically. This means, for example, that all fillets in a drawing can be altered in a single operation.

'What if' questions can be asked, and families of geometrically similar components can be generated from one source drawing. Perhaps most impressively, Apollonius PDT actually allows mechanical systems to work on screen. By dragging a component in a linkage, the rest of the linkage will move to the correct positions.



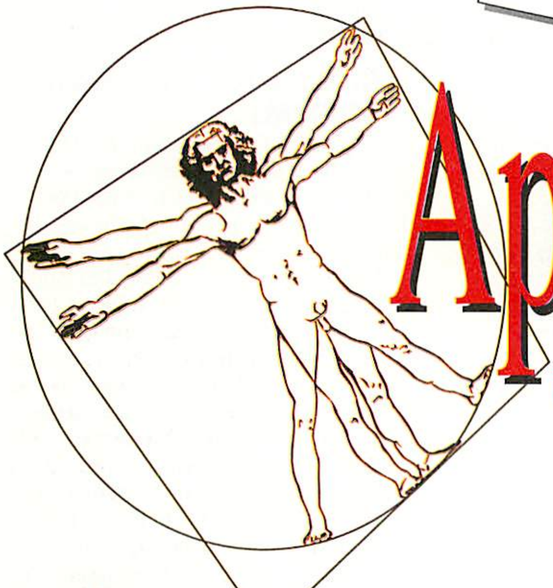
Revolutionary User Interface



Instead of the bewildering array of drawing tools offered by other CAD systems, Apollonius PDT can generate a comprehensive range of geometric constructions with just one line and one circle tool. The program monitors the context of mouse movements and button clicks and creates the most appropriate constructions. This means that the software is easy to learn, and also fast to use since frequent tool changes are not required.



Powerful yet simple control over the appearance of a drawing is given using a system of Styles and Effects (similar to those found in DTP applications). These duplicate the functionality of layers in old fashioned CAD systems, but give much greater freedom of control over the various attributes of elements within the drawing.

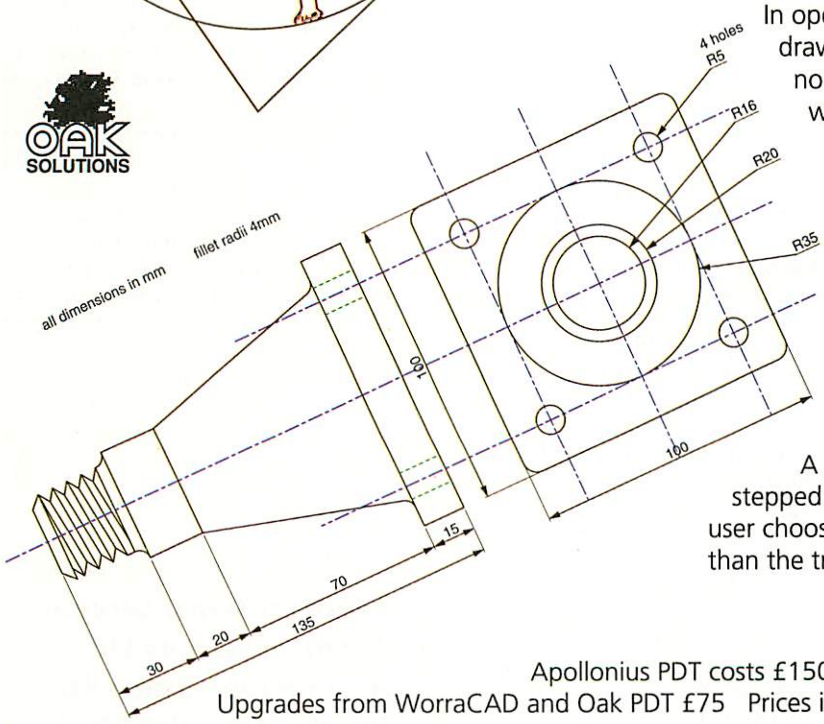


Apollonius PDT

The CAD system that rewrites the rule book

OAK SOLUTIONS

Drawing



In operation, Apollonius PDT works like a smart drawing board. Constructions such as tangents, normals, parallels and perpendiculars are created with consummate ease.



A single 'Ink' tool draws lines, arcs and circles to outline your contructions. Finally, a solitary dimension tool adds linear, circular and angular dimensions to the drawing. These are updated automatically if any sizes in the drawing change.



A virtual grid system allows distances to be stepped off from any origin point and at any angle the user chooses - this is much more versatile and intuitive than the traditional 'graph paper' style approach.

Apollonius PDT costs £150

Upgrades from WorraCAD and Oak PDT £75 Prices include P&P but exclude VAT

Oak Solutions Ltd Dial House Chapel Street Halton Leeds LS15 7RN

Tel: 0113 232 6992 Fax: 0113 232 6993 email: us@oakltd.demon.co.uk

*info

Dave Lawrence and Dave Acton present more programs, tips and techie trivia from beyond the PRM.

Stereotaxia

Author: David Horman

Stereotaxia: the electrical destruction of a small area of brain tissue – The Acton English Dictionary

I think this is what is going to happen if we get any more 3D stereo picture generators. Before we do go and get our brains curdled, here's David Horman's contribution to the great eye strain wind-up. (Isn't it amazing – one person says they can see an eagle or the space shuttle or something and suddenly *everyone* can, just so they don't feel silly and left out ... No, no, no! It's all true. Honest.)

David's generator is actually very good; it uses a background sprite (or at least a strip of a sprite) which makes the final image a lot easier to see. With many of our previous programs, random dot patterns were used which do not give the eyes much to go on while trying to merge the left and right images. With a colourful sprite they are given a recognisable pattern complete with colour to help isolate the image. The generation also happens in machine code, meaning the pictures appear almost instantly.

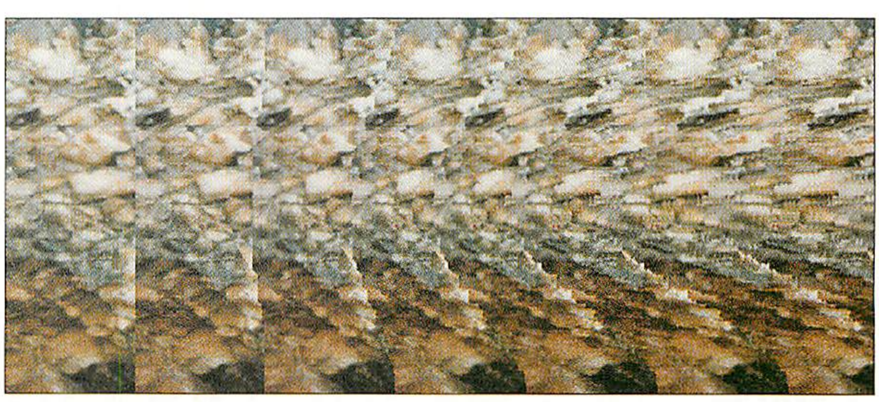
Four examples are provided on the cover disc (including one of our own making – *Spiral*) along with three preset background strips. To make new textures simply create a mode 15 sprite 96x256 and copy it into the *Patterns* directory within *Stereo*; if you do this while *Stereo* is loaded, click on the Update menu option to make the program 'see' the new pattern.

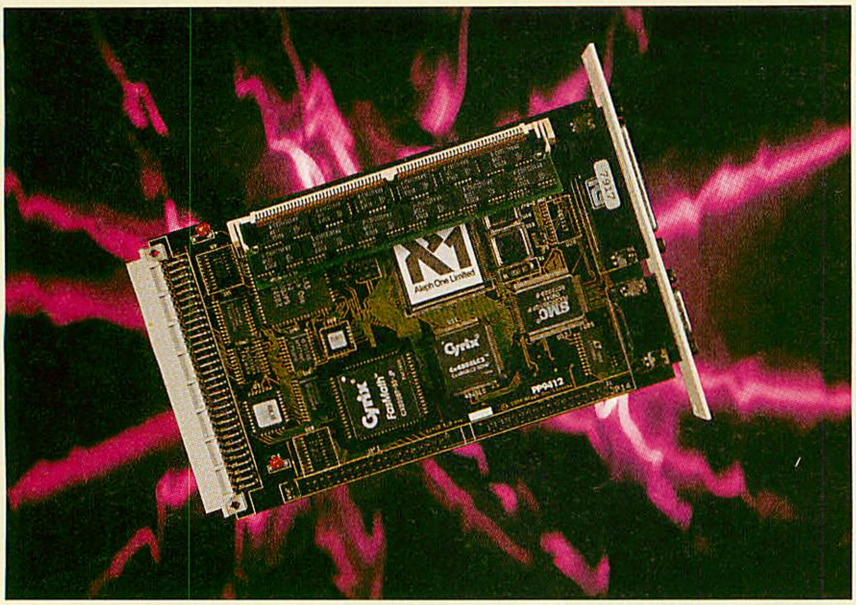
To create new source files, you need either a copy of *Paint* or a short BASIC program. Start with either a mode 15 sprite or go into mode 15 basic and design your picture. Stay clear of the right 96 pixels, as these are used to start the pattern going. You should use colours 0-45 for different depths – 0 (black) is the deepest and usually reserved for the background. You can use any of the colours up to 95, but any larger than 45 may cause problems as the right-hand edge of the object will be echoed across the picture. This will only really be noticeable with large differences in depths – keeping the gradation small will reduce the effect. To give you a start, the program we used to create Spiral can also be found in the examples directory. Note the method used to convert colour numbers into GCOL values.

Once generated, it is advantageous to squeeze the pictures with David's *Compress* program. This uses a simple method to compress the source images, making a huge difference in the amount of disc space taken up by your works of art. Once squashed, select a texture from the Stereo menu and double-click your image, and within an instant your picture will be displayed in glorious 3D. Clicking the mouse will return to the desktop. It is possible to feed vanilla sprite files direct to *Stereo*, in this case make sure the sprite is called 'stereo_map'

Stereo pictures can be saved via the save box on the *Stereo* menu or viewed again by clicking on the *Stereo* icon. By creating a number of subtly different source images, 3D animated sequences can be built up – any good ones, please send them in!

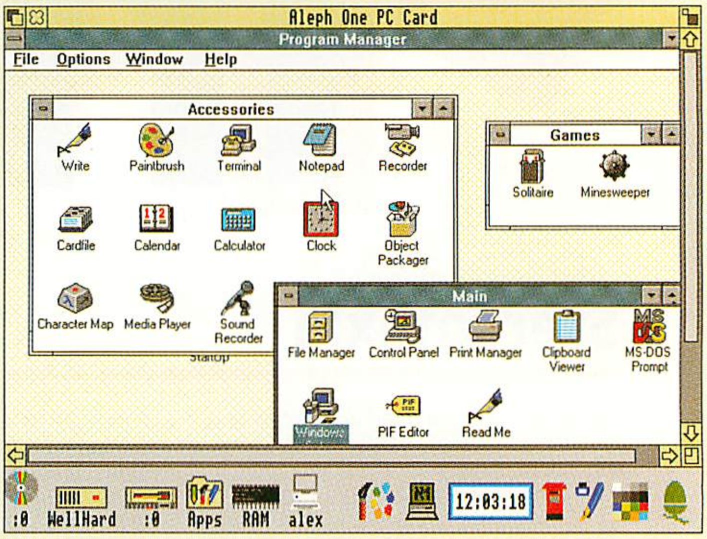
The *Compress* program can also decompress source images for later examination – just drag a file to the compress icon and its compressed nature will be detected and an uncompressed version saved.





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The Acorn PC 386 and PC 486 cards, designed and manufactured for Acorn by Aleph One, offer economical 386SX or high-performance 486SLC processors for the Acorn A3020 or A4000 models.

All these products are available through Acorn dealers; Aleph One cards also direct from Aleph One.

Recommended retail prices

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Lower prices for 1995 from Aleph One

HANDS ON

Beyond compare

Author: Dave Lawrence

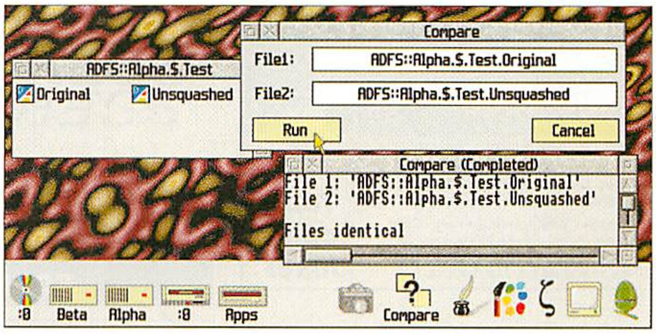
There comes a time when one's 'to-do' list just gets toooo long and something has to be done about it. The *Compare* utility had been on my particular urgent list for about five years, so in a quiet lull a month or so back I eventually got round to writing it.

The task – simple. A short machine code utility that could tell you if two files were *exactly* the same or not. This may sound a little daft, why not just make a copy of the first – well, how about verifying that an archived file is the same as the original? Or, in my case, that my implementation of the most fiendish LQWZX6R compression could correctly squeeze and unsqueeze a file without all sorts of errors.

I wanted command line and desktop compatibility but rather than write two separate programs, I decided to write a neat machine code command line-based routine and then create a front-end for it with the Acorn DDE tools. You can find the results on the cover disc – you will of course need the DDE from Acorn to use it. *Compare* is the command, *CompareS* the source code and *!Compare* the DDE tool. To use, first copy *Compare* into your library then simply type Compare fred jim, where *fred* and *jim* are obviously the names of the two files you wish to compare. A quick test is made to see if the files are the same length and then they are compared byte by byte. The number of differences are counted and reported at the end. The files are loaded in chunks so files of *any* length can be compared.

To use the DDE tool, copy *!Compare* into your DDE directory (or make sure the DDE has been booted to load the relevant support modules) and double-click it in the normal way. Click on the Compare icon to open the control window and either enter the two file names by hand or, much quicker, drag them into the icons. Click the Run button to start the comparison; the results will be reported in a task window.

The desktop version makes use of a simple parameter to the command line which you would not normally use – verbose mode. By tacking a -v to the command, the file names will be echoed before the comparison; this is useful in the desktop environment as many task windows could be floating about, each with the rather useless message 'files identical'.



Donut desktop

Author: Nicholas Marriott

Regular(ish) contributor Nicholas Marriott has sent us a new version of a utility we've seen before – a mouse pointer wrapper. With Desktops getting larger and larger, the ability to move the mouse off one edge of the screen and have it appear on the opposite edge is sometimes desirable.

Personally, by the time I've remembered I can do this, I've already moved the mouse the half or mile or so to the other side of the desk anyway, but then that's just me.

Nicholas' version of this program gets the thumbs up for:

1. being a module, so using less than 1K of RMA instead of the minimum wimpslot (possibly 32K on older 4Mb machines)
2. having a configurable *Edges command to set the distance away from the edge of the screen at which mouse wrapping occurs. It also works in any mode in or out of the Desktop without fuss.

PC GPE

Author: Dr Tony Lindop

We were pleased to hear that Dr Tony Lindop of Farnborough had enjoyed Dave L's Pocket Book game *Grey People Eaters* (March 1995), not least because Dr Lindop doesn't actually have a PocketBook to run it on!

What he does have is an A5000 with an Aleph One PC card. He also has a copy of a Psion Series 3a Emulator. This emulator requires at least a 386, whatever that is, 4 meg RAM and a VGA display, so the Aleph One 486 card was more than plenty.

If you would like to share Dr Lindop's joy, install the emulator on the 'PC' drive c in *c:\Psion* and copy the *GPE.OPA* file from the March disc into a new directory *c:\Psion\M\App*. Quite how fast the emulated emulated (sic) game runs will depend on your hardware, but it probably performs similarly to the real McCoy, except you can't play it on the tube.

Musical Cheers

Author: Mr Adamson

We'd like to start a new running theme in *INFO – music. Over the years we've had numerous utilities, graphical doodles, games and other trivia, but we've been somewhat low on the musical submissions. To get the ball rolling we have a small collection of MIDI files from the Head of Music at Hollingworth High School, Milnros – Mr. Adamson. A MIDI instrument is one of the few pieces of kit missing from the bulging *INFO offices, so we are not able to vouch for the authenticity of Mr. Adamson's arrangements. But he has threatened us with detention in gym and 1000 lines (of C code, of course) if we don't publish his work.

Here then, for your delectation are three tunes for playing through your MIDI keyboard:

Three Knights: traditional medley based on early renaissance tunes.

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Cats in the Village: Traditional country dance tune.

There'll be some tunes from Mr. Adamson over the next few months, but if anyone else has been busy composing or written any musically-oriented utilities we'd be very interested to hear from you. We'd be especially interested to see/hear a program that turned the standard RISC OS sound system into a MIDI instrument...

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Truly a Julia

Author: Alistair Turnbull

Fractal demos come and go. Those that go often do so quite slowly, but not if they've been coded by Alistair Turnbull of course. If you haven't got any socks on, I wouldn't bother doing anything about it since they'll only get blown off again by this real-time Julia set animation.

Alistair's demo actually comes in three flavours: 'There is a super-fast one which gets the right answer, an even faster one which doesn't, and a VGA one for those who like pixels, can tolerate jerkiness, and have a lot of memory.

'They work in roughly the same way as television feedback (you know, where you point the camera at the screen in a dark room and light a match), except with a quadratic camera. You can see this in action on the skimpy version, when you suddenly create a large black area and get lots of swirly fractal colours. This method is only possible because Julia sets are so much simpler than the Mandelbrot set – a fact not often appreciated, even by those who know how to draw them – because the iterated function for a Julia set is the same for every point on the screen. When you iterate a point in a Julia set, every point it passes through is actually another point in the Julia set, and all this free information is wasted if you draw it the conventional way.

'The skimpy version does a single iteration on each pixel on the screen, and colours it depending on where it lands. If it lands off the screen the pixel becomes white, otherwise it examines the screen to find out what colour it has landed on, and adds one. I've put in a limit so that pixels that fly round the screen 256 times without escaping just stay black.

'It does the iteration using a different equation for speed. The destination is just a quadratic function of the source, and the source is varying linearly across the screen, so this is not too difficult. The fact that everything happens in complex numbers makes life a bit more interesting, but hardly any more difficult. The idea can be seen from the following formula, which generates squares by adding up odd numbers:

```
A(0)=0
B(0)=1
A(n+1)=A(n)+B(n)
B(n+1)=B(n)+2
```

If you were to do the iteration using multiplications, it would take about five times as long.

'Each frame of the sensible version does the same job as about 300 frames of the skimpy version, but uses a sizeable helping of memory. Instead of looking at the colour on the screen (where an iteration lands), it just remembers which pixel it is meant to be looking at, and how many iterations it took to get there (initially 1). This takes 8 bytes for each pixel, or 512k in total (but I only use 256K – see later), and I store the address of the pixel, not its coordinates, obviously.

'This big array is a mapping of the screen onto itself which you can substitute into itself repeatedly, doubling the number of iterations each time. In other words you scan the array, and instead of looking at the screen to find the colour, you look at the array. For example, if you know point A takes 17 iterations to get to point B, and point B takes 5 iterations to get to point C, then you know that point A takes 22 iterations to get to point C, which you can store back in your array for later use. On the other hand, if point B escapes in 9 iterations then you know point A escapes in 26 iterations.

'This is handled by the routine incest%. It follows a chain (such as A to B to C in the above example) to a depth of six (i.e. A to B to C to D to E to F to G), extracting all the information it can (including the fact that B, C, D, E and F all land at G) and storing it. Anything that doesn't escape after six substitutions gets added to a queue, so it can come back to it and try again later. It turns out that very few non-black pixels get queued. The effectiveness of this routine depends on how long it has already been running (in each frame), so the queue gets emptied in reverse order to give every pixel a fair chance.

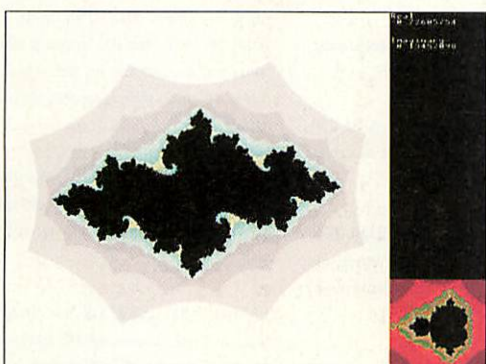
'You could navigate the chains rather elegantly using recursion, but the elegant method is rarely the fastest, and that is particularly true in this case. I don't waste time storing return addresses and local variables on the stack, but just unwrap the recursion and use all those registers that 486 programmers are so jealous of instead. The figure six comes from the maximum depth I can manage without running out of registers. When I empty the queue of lost points, I only bother to do a single substitution (instead of six), because most of the points in the queue will never escape, and those that will can use the almost complete Julia set very efficiently.

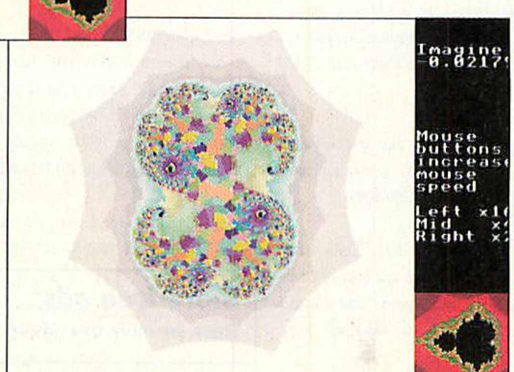
'The final piece of optimisation comes from the fact that the picture is symmetrical. You can ignore the bottom half of the screen completely, using half the time and memory, until you come to draw it.

'I can't find a way of working out how many iterations this program does (on average, because it's not the same for every point on the screen). I've counted colours as far as about 300, but I expect the black areas suffer several thousand iterations at times.

'The numbers are only 'stored' to the nearest pixel. You can't zoom in on the picture without generating the whole damn thing at the higher magnification. This means that the time taken is proportional to the square of the accuracy, just like long multiplication. However, the time taken only increases with the logarithm of the number of iterations (instead of taking the same time for each iteration), because calling incest% again would square the number of iterations (to nearly a million) in just twice the time.

'On the strength of this, I am going to predict that by the year 3000, when memory is not an object, and when the major barrier to Mandelbrot sets is the number of iterations and not the numerical accuracy, people will draw Mandelbrot sets by drawing a Julia set for each pixel on the screen (i.e. draw the four dimensional monster in slices) using my algorithm, and looking at the pixel at the centre. I'm pretty safe here, because I'll be long dead.'





Two different Julia sets, plotted at lightning speed by Alistair's program. Note that the area of black is fragmented in one and continuous in the other – whih is important if you're into fractals, apparently.

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• A3000, 2Mb RAM, RISC OS 3.11, TV modulator, 5.25in double disc drive, dot matrix printer, Impression 2, manuals, boxed. £450 ono. Tel: 0116-253 9579 (Leicester).

• A440/1,53Mb HD, ARM3, VIDC enhancer, 2nd floppy drive, 8Mb RAM, RISC OS 3.11, Acorn MIDI expansion card, offers above £950. CC faxpack, scanner and sound sampler also available. Tel: (01727) 846803.

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More free ads...

There are more free ads on page 99 of the magazine.

The thrill of the chase

Author: Jamie Shotton

I'm very pleased to report that no one has sent us a fox-hunting simulation. Harmless, animal-friendly chasing is the order here with a simple yet amusing little number from Jamie Shotton. His game, *Chase*, is a computer version of that classic playground favourite, Tig.

In case those halcyon playground days have drifted from your memories like the discarded wrapper of a *Texan* bar (remember those?) then here's a recap of the very complex rules. You're it, you run around, clonk somebody, say 'you're it' and run away. You continue this way until the bell rings or someone falls over, cuts their knee open and has to be carried to the school nurse.

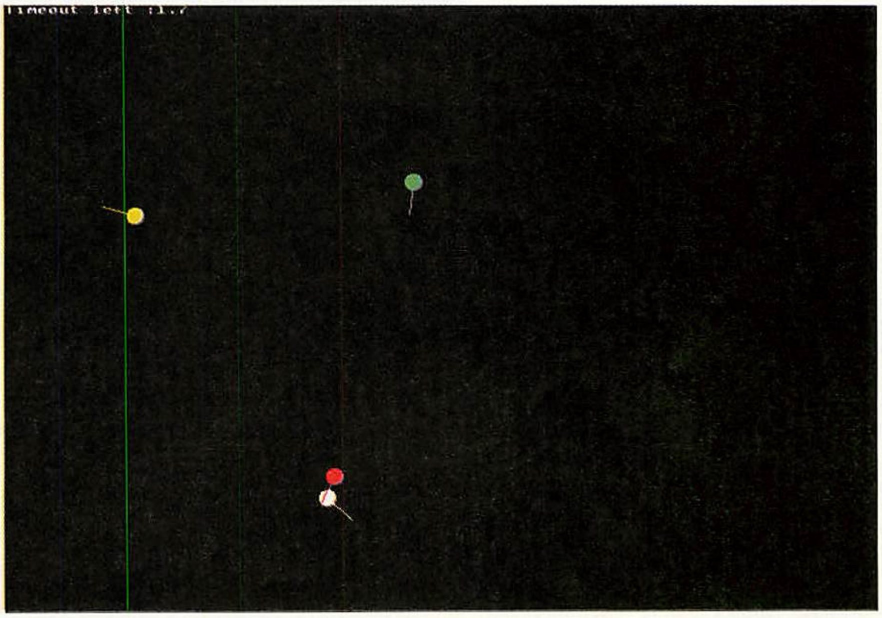
The game makes a surprisingly smooth transition from schoolyard to screen, although you will need at least one chum (but preferably three) to complete your fun as there is no computer-controlled player option. (We would of course like to hear from anyone who can provide one – Barry Wickett's *BlindFlies*, *INFO January 1992, might be a good source of inspiration). The controls are simple – each player has left, right and run keys, and these are shown in Table 1.

Upon running the game, you are given a little menu. Set the number of players (two to four) and the 'timeout' desired. This is a period during which the tagged player can't tag you back, so you can make your escape. Prongs may be on or off – when on you must poke a player with the end of your prong rather than simply collide with them. (If anybody had used prongs in our day they would have been up in front of the headmaster, I can tell you). Turning and movement speed are self-explanatory – increase for a more frenzied game. A small amount of Acceleration can be included in your movement and the Reverse Movement option makes for a very interesting game, particularly if you have prongs enabled. In reality this would be like running backwards very quickly towards somebody, and at the very last minute swinging round to clonk them with a hefty pole. A certain contender as a demonstration sport at the next Olympic Games I should say.

Any more playground antics much appreciated – to the usual address please. If you can supply a sprite of a *Texan* wrapper too, then you are a very sad person.

Table one – Chase keys

Player	Left	Right	Run
1	Z	C	X
2	<	?	>z
3	1	2	3 (keypad)
4	left	right	middle (mouse)



*QUIT

Due, it seems, to an ill-considered modification by ourselves, Andrew Bower's *CircleFit* from March 1995 does not behave as it should. Apologies to Andrew for mangling his program and we thank him for the corrected version which we are happy to include now. While we're on with it, did you spot our deliberate mistake in April? Yes, of course Matthew Broch was a completely made up name (April fool – ha ha!). His real name is of course Matthew Bloch. We would like to make it perfectly clear that this was a wild and wacky prankish hoot and not a typing error. Thank you.

As always, all offerings are most welcome. Send them to:

***INFO, Acorn User, IDG Media,
Media House, Adlington Park,
Macclesfield SK10 4NP.**

We won't mind if you don't include a printed letter, but please put your name, address and program title on every disc, and include a text file with your address and disc contents. An SAE will ensure your work's return. Also, any instructions – the more detailed the better – are appreciated, as are any diagrams, saved screens, examples and so on.

RiscPC Computer Systems

Acorn

RiscPC offers all the traditional strengths of RISC processing, and a great deal more. It is the world's most cost-effective 32-bit RISC based computer, producing astounding graphics and crystal clear sound. It's innovative design provides virtually unlimited upgrade capability, expanding as your needs increase. Built around the ARM 610 processor, RiscPC pushes computing to the limits, with it's intuitive operating system, support for up to 256Mb RAM, powerful 32-bit graphics and 16-bit sound system. RiscPC allows the use of foreign operating systems via it's unique second processor slot, thus opening up the world of DOS, Windows and Unix to name but a few. Access to CD-ROM and networking is also provided, making RiscPC an ideal multimedia or network station..

All RiscPC Systems include:

- ARM610 processor running at 30MHz
- RISC OS 3 v3.5 operating system
- 3.5" 1.6Mb Floppy Disk Drive
- 2, 4 or 8Mb RAM expandable to 256Mb
- 1Mb or 2Mb Video RAM
- 210Mb or 420Mb IDE hard disk drive
- 8 channel stereo sound
- full 32-bit graphics capabilities
- 2nd processor slot
- 2 or 4 32-bit expansion bus slots
- 5.25" drive bay for CD-ROM drive
- 14" EPA 0.28mm SuperVGA Monitor
- 102-key keyboard u 3 button mouse
- optional CD-ROM drive
- 1-year On-Site Warranty (3-year option)



FREE* VRAM upgrades

0% Finance available on all RiscPC systems call for details

RiscPC 2M HD210 System

- 2Mb RAM
- 210Mb IDE Hard Disk Drive
- 1Mb Video RAM

£1249

RiscPC 5M HD210 System

- 4Mb RAM
- 210Mb IDE Hard Disk Drive
- 1Mb Video RAM

£1399

RiscPC 9M HD420 System

- 8Mb RAM
- 420Mb IDE Hard Disk Drive
- 2Mb Video RAM

£1699

RiscPC Learn & Play System

- 2Mb RAM
- 210Mb IDE Hard Disk Drive
- Software bundle – 10/10 English, Number, French, Spelling, Junior Essentails, Virtual Golf, Haunted House, E-Type 2, Dungeon & Break 147

£1199

** Only applies to above systems*

RiscPC Upgrade Options

Memory Options		
ARA0340/U	upgrade from 2Mb to 4Mb RAM	£69.00
ARA0350/U	upgrade from 4Mb to 8Mb RAM	£129.00
ARA0370/U	upgrade from 8Mb to 16Mb RAM	£249.00
ARA0410/U	upgrade from 1Mb to 2Mb VRAM	£79.00
Hard Disk Options		
ADA1520/U	upgrade from 210Mb to 420Mb IDE hard drive	£89.00
ADA1530/U	upgrade from 210Mb to 540Mb IDE hard drive	£159.00
ADA2320/U	upgrade from 420Mb to 1Gb SCSI hard drive	£459.00
GDA0330	270Mb Syquest IDE HDD (2 slices req'd)	£259.00
Monitor Options		
MKA1640/U	upgrade 14" to 15" Aries 6000i monitor	£89.00
MKA1670/U	upgrade 14" to 17" Acorn AKF85 monitor	£379.00
MKA0490/U	upgrade 14" to 20" Panasync Pro	£899.00
Miscellaneous Options		
AEA1650/U	upgrade to 486SX-33MHz PC Card	£99.00
AEA1890/U	upgrade to 16-bit Sound Card	£55.00
APA0410/U	upgrade to Dual Speed CD-ROM drive	£209.00
AOA0020	Aries XLink 14400 Fax Modem & ArcFax	£119.00
AOA0040	Aries XLink V34 Fax Modem & ArcFax	£219.00
AEA1640	Additional Case Module Kit	£99.00
GUA0230	3 year Extended On-Site Warranty	£ POA
AAA0600	Learning Curve software pack	£39.00
AAA0610	Home Office software pack	£85.00
AAA 0730	Early Years softwre pack	£39.00

Multimedia Systems

Enter the world of multimedia with these RiscPC MPC systems. Gain access to the masses of data on CD-ROM, study the huge amounts of text articles, graphic images and even sounds, all interacting together. The ideal tool for education or even for home use.

All systems include:

- RiscPC system with 14" monitor
- 2Mb Video RAM
- Dual speed IDE CD-ROM drive
- Pair of Hi-Fi Stereo Speakers
- CD Software bundle - worth over £200

RiscPC 5M MPC System

- 4Mb RAM
- 210Mb IDE Hard Disk Drive
- 1Mb Video RAM
- Dual speed CD-ROM Drive
- Hi-Fi Stereo Speakers
- CD Software Bundle

£1699

RiscPC 9M MPC System

- 9Mb RAM
- 420Mb IDE Hard Disk Drive
- 1Mb Video RAM
- Dual speed CD-ROM Drive
- Hi-Fi Stereo Speakers
- CD Software Bundle

£1999

CD Software Bundle

- Acorn Replay Video Collection CD vol.1
- Illustrated Sherlock Holmes
- Illustrated Works of Shakespeare
- Kingfisher Children's Micropedia
- Pro Artisan v2 CD



PC Multimedia Kit

As an option to the RiscPC MPC Systems, this kit gives you greater access to PC based CD-ROM software. The kit includes:

- RiscPC 486SX-33MHz PC Card *
- MS-DOS v6.22 and MS Windows v3.11
- MS Encarta 1995 CD
- MS Golf CD
- MS Money v3.0 CD
- MS Dangerous Creatures CD
- MS Works v3.0
- MS Scenes

Special introductory price £219

* minimum 8Mb RAM recommended

Publishing Systems

One of the main uses of the RiscPC is Desktop Publishing. Utilising the immense processing power and high quality graphics, you will be able to produce professional quality documents in no time at all.

All systems include:

- RiscPC system with 14" monitor
- 2Mb Video RAM
- Impression Publisher DTP software
- Photodesk image processing/photo retouching software

RiscPC 5M DTP System

- 4Mb RAM
- 210Mb IDE Hard Disk Drive
- 2Mb Video RAM

£1539

RiscPC 9M DTP System

- 8Mb RAM
- 420Mb IDE Hard Disk Drive
- 2Mb Video RAM
- Impression Publisher
- Photodesk

£1799

Canon IX-4015 Colour Flatbed Scanner



The IX-4015 is a compact A4 flatbed scanner offering full 24-bit colour scanning up to a maximum resolution of 400 x 800 dpi. The scanner can also be used in 256 grey scale mode, up to 400 x 1200 dpi. The scanner comes complete with 16-bit SCSI interface, cables, and Twain drivers.

Offer Price (when purchased with DTP system) **£599**

Acorn 32-bit RISC Computer Systems



The entry level range of 32-bit RISC based computer systems, ideal for home, education or small business applications.
The A3010 is aimed at home use, with its built-in TV modulator, it will connect to a standard colour TV.
The A3020 is the standard education model, ideal as a network workstation or for stand-alone use with built-in hard drive.
The A4000 is designed for home and small business use, coming with a 210Mb hard drive and choice of monitor.
The A4 Notebook is for those who need a RISC OS machine on the move. Supplied with 4Mb RAM, hard disk and mouse.

System	No Monitor	AKF52	AKF50
A3010 1M Action Pack	£249	£449	£519
A3010 2M Learning Curve	£299	£499	£569
A3010 2M Early Years	£299	£499	£569
A3020 2M FD	–	£689	£769
A3020 2M HD80	–	£819	£909
A4000 2M HD210	–	£839	£919
A4000 2M Learning Curve	–	£889	£959
A4000 2M Early Years	–	£889	£959
A4000 2M Home Office	–	£929	£999
A4 4M HD Notebook	£1599	–	–

CD-ROM & Multimedia

Cumana CD-ROM Drives

All Cumana CD-ROM drives are supplied with all connecting cables, driver software and interfaces where necessary.



Oscar CD-ROM Drive

A low cost drive which connects to the parallel port of an A3010,A3020,A4000 or A5000.

- Oscar CD-ROM Drive - Parallel Port £199

Bravo CD-ROM Drive

A range of low cost high performance drives which have a built-in audio mixer.

- Bravo CD-ROM Drive - Parallel Port £249
- Bravo CD-ROM Drive - A300/A400/A5000 £249
- Bravo CD-ROM Drive - A3000/A4000 £249
- Bravo CD-ROM Drive - EMU £249

Victor CD-ROM Drive

A SCSI based CD-ROM drive system fot those who require improved performance over the SLCD type.

- Victor CXX402A CD-ROM Drive - SCSI £289

Indigo CD-ROM Drive

A range of internal fitting CD-ROM drives for use with the RiscPC computer system.

- CAA300i CD-ROM Drive - IDE £189
- CAA300iA CD-ROM Drive - IDE £219
- CAA401 CD-ROM Drive - SCSI £189

Speakers & Accessories



- Aries Stereo Speakers £6
- Aries Hi-Fi Stereo Speakers - 10W £19
- Aries Hi-Fi Pro Stereo Speakers - 25W £28
- Aries Digital Stereo Speakers - 25W £39
- Aries Digital Plus Stereo Speakers - 70W £48
- Aries Microphone £4.50
- Aries Stereo Headphones £4.50

CD-ROM Software

Some titles require additional software to run under RISC OS.
These are marked as follows:
EB - Electronic Books : PaperOut software required
PD - PDSView software required

- PDSView £99
- PaperOut - Electronic Book player £49

Art, Graphics & Design
- Artworks v1.5 £129
- Artworks Clipart CD v1 £19
- Artworks Clipart CD v2 £19
- Art in the National Curriculum £75
- Pro Artisan v2 £136

English & Literature
- Goldilocks £39
- Granny's Garden £30
- Illustrated Works of Shakespeare £23
- Karaoke Macbeth £49
- Karaoke Midsummer Night's Dream £49
- Living Poetry £49
- Listen & Read (EB) £39
- Oxford Reading Tree Talking Stories £39
- Sherlock Holmes £23
- Sherston Naughty Stories £79

Geography, Nature & Environment
- British Birds £150
- Creepy Crawlies £49
- Counties of Great Britain £39
- Countries of the World £39
- Dictionary of the Living World £89
- Earth Guide (EB) £39
- Environment: Land & Air £97
- Environment: Water £97
- Environment: Climate Change £34
- Environment: Dwindling Resources £34
- Environment: Conservation £34
- Garden Wildlife £39
- Langdale Primary £99
- Map Skills £49
- Seahore Life £39
- The Physical World £97
- Usborne Exploring Nature £125
- The World's Weather £47

History
- Castles £39
- Changing Times £125
- Frontier 2000 £109
- Industrial Revolution £105
- Medieval Realms £145
- Photobase: Victorians £49
- Picturebase: Victorian Britain £99
- World War II: Global Conflict £97
- World War II: Sources & Analysis £97
- World of the Vikings £39

Languages
- Directions 2000: French £137
- En Marcha: Spanish £137

Mathematics
- Cars - Maths in Motion £49
- Number Games £79
- Perspectives £79
- Picture Gallery £79
- Who Stole the Decimal Point? £79

Science & Technology
- Chemistry Set £149
- Science & Technology Library (EB) £39
- Collins Electronic Food File (EB) £29
- Science: Elements £97
- Science: Materials £97
- Inventors & Inventions £147
- Photobase: Science £49
- Understanding the Body £39
- Understanding Energy £47

Space & Astronomy
- Space Encyclopaedia £34
- Space Science Sampler (PD) £40
- Voyager Spacecraft (PD) £200

Educational Resources
- Acorn Video Collection Disc 1 £10
- Bitfolio 6 - clipart images £49
- Horizon Report £19
- Photobase: 1920's £49
- Photobase: 1930's £49
- Photobase: 1940's £49
- Photobase: 1950's £49
- Photobase: 1960's £49
- Photobase: Landscapes £49
- Sermec Treasure Chest £69
- SSERC Graphics Collection £99

Dictionaries & Encyclopaedia
- 19th Century Biographies £25
- CIA World Fact Book (EB) £29
- Oxford English Dictionary (EB) £29
- Hutchinson Gallup Info (EB) £29
- Hutchinson Guide to the World (EB) £29
- Hutchinson Encyclopaedia £49
- Kingfisher Children's Micropedia £88
- Times & Sunday Times £178
- Times & Sunday Times Sampler £50
- Tekkie CD - Acorn PRM's on CD £99

Pocketbook



The truly portable computer. With built-in word processor, spreadsheet, database, spelling checker and calculator, it provides all the basic tools for recording ideas, notes & data.

- **Pocket Book 256K Computer £165**
- **Pocket Book II 256K Computer £219**
- **Pocket Book II 512K Computer £269**

Pocket Book Accessories

- A-Link £40
- Parallel Link £25
- MAC Link £65
- PC Serial Link £59
- Leather Case £21
- Schedule £16
- Schedule Class Pk £160
- Plotter £25
- Plotter Class Pack £250
- 128K RAM Disk £49
- 256K Flash Disk £59
- 512K Flash Disk £85
- OPL Editor £59
- Mains Adaptor £12

Aries Fax Modems



Enter the realm of high speed communications with the new Aries XLink range of fax modems. Two versions are available - standard 14400bps V32bis or high speed 28800bps V34 model. Error correction and data compression are standard on all models, so faxing and data transmission overseas will not cost the earth.

When used with ArcFax software, you can send a fax directly from your RISC OS desktop, as easily as printing a document.

- 14400bps V32bis or 28800bps* V34 data transmission speed
- V32, V32bis, V22, V22bis and V21
- Error correction to MNP2-5 and V42 standards
- Data compression to MNP5 and V42 standards
- Call back security
- Synchronous & Asynchronous operation
- Group 3, Class I & II Fax at up to 14400bps (V17)
- Group 1 and 2 Fax compatible (V27ter and V29)
- 100% Hayes compatible
- 3 year manufacturers warranty
- BABT approved

- **Aries XLink XL144e Fax Modem £89**
- **Aries XLink XL144e Fax Modem & ArcFax software £119**
- **Aries XLink XL288e Fax Modem £185**
- **Aries XLink XL288e Fax Modem & ArcFax software £215**

* note 28800bps speeds only available when used with a RiscPC

FREE introductory membership to CompuServe with every modem

Flatbed Scanners

Canon IX-4015 Scanner

Canon



The IX-4015 is a compact A4 flatbed scanner offering full 24-bit colour scanning up to a max resolution of 400 x 800 dpi. The scanner will also scan 256 grey scale images with a max resolution of 400 x 1200 dpi.

- 400 x 800 dpi resolution in colour
- 400 x 1200 dpi resolution in monochrome
- Connection via SCSI interface (not included)
- ImageMaster scanning software
- TWAIN driver software

£569

- Auto Document Feeder - IX-4015 **£249**

HP ScanJet 3C Scanner

The ScanJet 3C is an A4 flatbed scanner capable of producing full 24-bit colour scans at a maximum resolution of up to 1600 dpi.

- 400 x 400 optical resoluton
- 24-bit colour and grey scale modes
- A4 scanning area (216 x 297mm)
- Connection via SCSI interface
- ImageMaster scanning software
- TWAIN drivers

£699

- **Auto Document Feeder - ScanJet 3C £365**
- **Transparency Adapter - ScanJet 3C £499**

SCSI Interfaces
- 16-bit SCSI Interface (A300/A400) £89
- 32-bit SCSI-2 Interface for RiscPC £159
- SCSI-2 Interface Cable £20

Software
- upgrade to Spacetech Photodesk software £119
- Sleuth OCR software £40

Aries Monitors

EnergyPro 14" LR

- 14" hi-res 0.28mm dot pitch tube
- Low Radiation MPRII standard
- 800 x 600 resolution
- Tilt and swivel base
- Horiz frequency - 29KHz to 70KHz

£165

Alphascan Pro LR

- 14" hi-res 0.28mm dot pitch tube
- Low Radiation MPRII standard
- 1280 x 1024 @60Hz
- 1024 x 768 @72Hz
- Horiz frequency - 29KHz to 70KHz

£199

15" EnergyPro 6000i

- 15" hi-reso 0.28mm dot pitch tube
- Low Radiation MPRII standard
- EPA Energy Star compliant
- 1280 x 1024 @ 60Hz
- Horiz frequency - 29KHz to 70KHz

£239

17" EnergyPro 7560i

- 15" hi-reso 0.28mm dot pitch tube
- Low Radiation MPRII standard
- EPA Energy Star compliant
- 1280 x 1024 @ 60Hz
- Horiz frequency - 29KHz to 70KHz

£449

Hard Drives

A300/A400 IDE Hard Drive Upgrades
Complete with drive, interface, mounting kit, cables and software.

- ADA0580 365Mb 11ms £179
- ADA2030 420Mb 11ms £199
- ADA2210 540Mb 12ms £219

A5000/RiscPC IDE Hard Drive Upgrades
For use as replacement of existing drive.

- ADA0880 365Mb 11ms £119
- ADA2060 420Mb 11ms £149
- ADA2220 540Mb 11ms £399

- 2nd Drive Accessory Kit £10

IDE Interfaces & Accessories
- 8-bit IDE interface for A3000/A3010 £59
- 16-bit IDE Interface for A300/A400 £39
- Dual IDE Interface Cable £9

A3000/A3010 Internal IDE Hard Drives
Complete with drive, interface and software.

- ADA2360 170Mb 13ms £199
- ADA2090 340Mb 11ms £299
- ADA2200 510Mb 11ms £399

A300/A400 SCSI Hard Drive Upgrades
Complete with 16-bit interface, drive, cables and mounting kit.

- ADA2300 365Mb 12ms £249
- ADA2310 540Mb 11ms £299
- ADA2320 1.0Gb 9ms £499
- ADA2330 2.0Gb 10ms £849

SCSI Interfaces & Accessories
- 16-bit SCSI Interface - A300/A400 £89
- 32-bit SCSI II Interface RiscPC £159
- Dual SCSI Interface Cable - ribbon £9
- SCSI Interface Cable - round £15

Networking

Acorn Ethernet Network Interface Cards
- Acorn Ethernet Card - A5000 £149
- Acorn Ethernet Interface - RiscPC £99

Access+ Peer-to-Peer Networking
Simple, easy to use networking system allows you to share hard disks, CD-ROM and printers. Using industry standard Ethernet cabling, you have a flexible system that can grow as your requirements do.
- Access+ for A3000 £129
- Access+ for A3020/A4000 £129
- Access+ for A5000 £129
- Access+ for RiscPC £95
- Access+ CD Share software £95

i-Cubed Ethernet Network Interface Cards
- EtherLAN 102 BNC/TP - A3000 £125
- EtherLAN 200 BNC - A3020/A4000 £135
- EtherLAN 201 TP - A3020/A4000 £135
- EtherLAN502 BNC/TP - A5000 £125
- EtherLAN602 BNC/TP - RiscPC £105

Ethernet Hubs
- Aries EH-8 8port Ethernet Hub £129
- Aries EH-16 16port Ethernet Hub £279
- Aries EH-32 32port Ethernet Hub £459

Ethernet Cabling

Cable Length	Thinnet	UTP
3m	£5	£4
5m	£6	£6
10m	£8	£9
20m	£15	£16

Connectors and Accessories
- BNC 50ohm Terminator £0.95
- BNC T-connector £1.75
- BNC In-line coupler £1.75

Networking Software
- Level 4 Fileserver Release 3 £359
- TCP/IP Protocol Suite - single user £99
- OmniClient £235
- InterTalk £75

Upgrades & Accessories

RISC OS Upgrades
- Software Upgrade - all machines £74
- Carrier Board - A300/A440 machines £21
- Software Upgrade - Bulk 10 Pack £319

Memory Upgrades

Model	2Mb	4Mb	8Mb
A3000	£49	£119	£269
A3010	£59	£139	-
A3020/A4000	-	£89	-
A5000	-	£79	£269
A540/R260	-	£249	-

RiscPC Additional RAM Modules
- 2Mb £79
- 4Mb £125
- 8Mb £249
- 16Mb £399
- 32Mb £POA
- 64Mb £POA
- 1Mb VRAM £89
- 2Mb VRAM £159

Graphics/Sound Cards
- Acorn RiscPC 16-bit Sound Card £59
- CC ColourCard Gold - A300/A400 £239
- CC Eagle M2 Multimedia Card £319
- CC Hawk V9 MK2 Digitiser £189
- CC Chroma 500 Genlock Card £419
- CC Chroma 150 PAL Encoder £169
- CC Chroma Genlock Card £209
- CC TV Tuner £89
- CC TV Tuner & Teletext £159
- CC Movie Magic MPEG Card £249
- CC ScanLight Video 256 £199
- CC ScanLight 256 - A3000 Internal £189
- HCCS Vision24 254 line Digitiser £99
- HCCS Vision24 508 line Digitiser £149
- WE Scan256 handscanner - A5000 £115
- WE Scan256 handscanner - A3000 £125
- WE A4 Mono Scaner & Feeder £199
- WE Multiscan VIDC Enhancer £10
- WE SuperVGA VIDC Enhancer £15

Ultimate Expansion

Increase the expansion possibilities of your Acorn computer with the Ultimate Expansion system. In its simplest form it is a standard internal podule with built in user port and also space for a 2.5" IDE hard disk drive. Up to 3 micro podule slots are provided for other uses such as analogue port, video digitiser or even SCSI interface.

- Ultimate Expansion Interface £39
- Ultimate Expansion Interface & IDE £99
- Ultimate Expansion with 170Mb drive £249
- Ultimate Expansion with 340Mb drive £299

Micro Podules for Ultimate Expansion
- SCSI Interface £69
- Vision24 Colour Digitiser £99
- ScanLight 256 handscanner £229
- MIDI Interface £49
- Analogue Interface £29

I/O Cards
- A3000 I/O Card - User/Analogue £25
- A3000 User Port/MIDI Card £44
- A300/A400 I/O Card - User/Analogue £29

Miscellaneous Add-Ons
- A300 4 way Backplane £25
- A300/A400 Fan £10
- A3000 Serial Port Upgrade £18
- ARC to BBC Serial Transfer Link £15
- MEMC1A Upgrade Kit £29
- Floating Point Accelerator - A5000 £89
- A4 Notebook Battery Pack £49
- 25MHz ARM3 Turbo Card £149
- Sportster 14.4 Modem & ArcFax £159
- Sportster 28.8 Modem & ArcFax £239
- DataSafe 120Mb Portable Tape Drive £399

PC Cards
- 486 25MHz 0Mb PC Card - A5000 £349
- 486 50MHz 0Mb PC Card - A5000 £429
- 4Mb RAM module £125
- 8Mb RAM module £249
- 16Mb RAM module £399
- MS-DOS 6.2 & Windows 3.11 £89

RiscPC 486 PC Card
Add PC functionality to your RiscPC with the 486SX-33 2nd processor card
Introductory Offer Price £99

Accessories

Dustcovers & Carry Cases
- A3000 Keyboard cover £5
- A3000 Keyboard & Monitor cover £9
- A300/A400 Micro & Monitor cover £9
- A5000 Micro & Monitor cover £9
- 14" Monitor cover £6
- A3000/A3010 Carry Case £10
- A4 Notebook Carry Case £35

Mice & Joysticks
- Archimedes MK4 Mouse £24
- Acorn Logitech Mouse £27
- Quest Tracerball £20
- PowerPad Single Joypad £25
- PowerPad Dual Joypad £34

Miscellaneous Accessories
- A3000 Monitor Stand £15
- A3000 External Podule Case £10
- ARC Keyboard Extension Cable £5
- ARC Mouse Port Splitter £5

We stock the complete range of spare parts call for prices and availability.

Concept Keyboards
- A4 2010 Concept Keyboard £99
- A3 2010 Concept Keyboard £109
- 2010 BBC User Port Cable £12
- 2010 Archimedes Serial Cable £12
- ARC Concept Keyboard Design S/W £20

Multiscan Monitors
- Acorn AKF52 - 14" £249
- Acorn AKF50 - 14" £299
- Acorn AKF60 - 14" £299
- Acorn AKF85 - 17" £969
- Panasonic TX-D1731 - 17" £499
- Panasonic TX-D2131 - 21" £1359
- Sony CPD-15SF1 - 15" £287
- Sony GDM-17SE1 - 17" £819
- Sony GDM-20SE1 - 20" £1315
- Taxan EV400 LR - 14" £190
- Taxan Ergovision 580 LR - 15" £285
- Taxan Ergovision 880 LR - 17" £520
- Taxan Ergovision 2100 LR - 21" £1530

Diskettes

Excel Diskettes - Lifetime Guarantee
- Excel 3.5" DSDD Diskettes - 10pk £6
- Excel 3.5" DSHD Diskettes - 10pk £7
- Excel 3.5" DSHD Diskettes - 50pk £22

3M/Verbatim Diskettes
- 3.5" DSDD Diskettes - 10pk £6
- 3.5" DSHD Diskettes - 10pk £7
- 5.25" DSDD 80T Diskettes - 10pk £7
- 5.25" DSHD Diskettes - 10pk £10

Educational Discounts
available on some products to Schools, Colleges & Universities
Call 01582 745555 for details

Printers

Laser Printers

Brother HL630	6ppm	£324
Brother HL660	6ppm	£464
Canon LBP 4i*	4ppm	£395
Canon LBP430W	4ppm	£363
Canon LBP1260	12ppm	£909
Epson EPL-3000*	4ppm	£389
Epson EPL-5600*	6ppm	£593
HP Laserjet 4L	4ppm	£353
HP Laserjet 5P	5ppm	£587
HP Laserjet 4 Plus	12ppm	£938
HP Laserjet 4V - A3	16ppm	£1368
HP Laserjet Colour	2ppm	£4395
OKI OL-400ex	4ppm	£289
OKI OL-410ex	4ppm	£399
Panasonic KX-P4400	4ppm	£270
Panasonic KX-P4401	4ppm	£330
Panasonic KX-P4410**	5ppm	£318
Panasonic KX-P4430**	5ppm	£479
Panasonic KX-P4440**	10ppm	£679

All printers are covered by 12 months RETURN TO BASE warranty unless stated differently as below:
* = 12 months On-Site Warranty
** = 2 years On-Site Warranty

Inkjet Printers

Canon BJ200ex	80col	£170
Canon BJ30	80col	£153
Canon BJ230	132col	£247
Canon BJ300	80col	£364
Canon BJ330	132col	£404
Canon BJC4000 Colour	80col	£232
Canon BJC600e Colour	80col	£344
Canon BJC70 Colour	80col	£229
Canon BJC800 Colour	132col	£1065
Epson Stylus 800+	80col	£168
Epson Stylus Colour	80col	£323
Epson SQ870	80col	£415
Epson SQ1170	132col	£559
HP DeskJet 320	80col	£165
HP DeskJet 320 & CSF	80col	£180
HP DeskJet 540	80col	£209
HP DeskJet 660 Colour	80col	£294
HP DeskJet 850 Colour	80col	£391
HP DeskJet 1600 Colour	80col	£920
HP PaintJet XL300 - A4	80col	£1599
HP PaintJet XL300 - A3	132col	£1769
Star SJ144	80col	£285

24pin Matrix Printers

Citizen ABC	80col	£103
Citizen ABC Colour	80col	£125
Citizen Swift 24X	132col	£187
Epson LQ150	80col	£112
Epson LQ150 Colour	80col	£158
Epson LQ570+	80col	£185
Epson LQ1070+	132col	£282
Epson LQ1170	132col	£400
Epson DLQ3000 Colour	132col	£672
Pansonic KX-P2023	80col	£108
Panasonic KX-P2135 Col.	80col	£124
Panasonic KX-P2124	80col	£198
Panasonic KX-P3626	132col	£259
Star LC24-20 II	80col	£113
Star LC24-15 II	132col	£232
Star LC24-300	80col	£188
Star LC240	80col	£92
Star LC240 Colour	80col	£103
Star XB24-200 Colour	80 col	£329
Star XB24-250 Colour	132col	£395

9pin Matrix Printers

Citizen Swift 90	80col	£114
Citizen Swift 90 Colour	80col	£121
Citizen Swift 120D+ Parallel	80col	£90
Citizen Swift 120D+ Serial	80col	£105
Epson LX300	80col	88
Epson FX870	80col	£221
Epson FX1170	132col	£280
Epson DLQ3000		£1099
Epson DFX5000+	132col	£89
Panasonic KX-P1150	80col	£259
Panasonic KX-P3696	132col	£259
Star LC15	80col	£177
Star LC100 Colour	132col	£89
Star LC90	80col	£89
Star ZA200 Colour	80col	£255
Star ZA250 Colour	80col	£315

Printer Accessories

Memory Upgrades

Type	1M	2M	4M
Canon LBP-4+	£139	–	–
Canon LBP-8 IV	£129	–	£299
Epson 5200/5600	£58	£115	£215
HP III/IIIP/IIID	£75	£115	£135
HP II/IID	£75	£115	£135
HP 4L/4MI	£75	–	–
HP 4/4M/4P/4AV	£75	£85	£125
Pan 4420/4450	£75	£115	£135
Pan 4410/4430	£129	£199	–
Pan 4400/5400	£89	£139	£229
OKI OL400ex	£99	£118	–
Star LS-5	£75	–	–

HP DeskJet 500 256K RAM	£75
Panasonic 32K Buffer - Matrix range	£16

Laser Consumables

Type	Toner	Drum	Dev
Brother HL630	£20	£99	–
Canon/Star 4s	£46	–	–
Canon LBP-8 IV	£70	–	–
Epson 4100/4300	£75	£89	–
Epson 5200	£85	–	–
HP III/IIID	£47	–	–
HP IIP/IIIP	£46	–	–
HP 4/4M	£72	–	–
HP 4L/4ML/4P/4MP	£49	–	–
OKI OL-400/800	£19	£189	–
OKI OL-400ex	£17	£129	–
Pan 4410/4430	£29	£80	£90
Pan 4440	£32	£108	£115
Pan 4420	£24	£60	£55
Pan 4450/51/55	£18	£75	£60
Pan 4400/5400	£12	£69	–
Star LS-5	£83	–	–

Sheet Feeders

Canon BJ10ex/BJ10sx		£40
Canon BJ300	Std: £88	2nd: £88
Canon BJ330	Std: £92	2nd: £92
Citizen Swift 200/240		£75
Epson LQ570/LQ870	Std: £47	Hi: £139
Epson LQ1070/1170	Std: £89	Hi: £207
HP DeskJet 320		£48
Panasonic 1170/1180/1123		£59
Panasonic 1124/2124		£79
Panasonic 1624/2624		£128
Panasonic 2135/1150		£30
Star LC100		£69
Star LC24-20		£69
Star LC200/LC24-200		£69

Tractor Feeders

Epson LQ100/150	£29
Epson LX300	£18
Epson LQ570 Pull	£39
Epson FX/LQ870	£45
Epson FX/LQ1170	£65

Colour Kits

Citizen Swift 24/200/240	£36
Citizen ABC	£22
Epson LX300/LQ300	£33
HP DeskJet 320/540	£28
Panasonic 2180/2123/2124	£32

Ribbons/Ink Cartridges

(Manufacturers Original Ribbons Only)

Type	Black	Colour
Canon BJ10ex/sx	£14	–
Canon BJ200/BJ230	£16	–
Canon BJ300/BJ330	£11	–
Canon BJC4000	£8	£13
Canon BJC600	£7	£8
Canon BJC800/820	£16	£22
Citizen 120D+	£4	–
Citizen Swift 200/240	£4	£12
Citizen Swift 24X	£8	£18
Epson LX400/850/FX870	£4	–
Epson LX100	£4	–
Epson LQ100	£5	–
Epson LQ150	£4	£12
Epson LQ570/870	£5	–
Epson LQ1070/1170	£8	–
Epson Stylus 800/1000	£10	–
Epson Stylus Colour	£15	£21
Epson SQ870/SQ1170	£26	–
Fujitsu B100/B200	£18	–
HP DeskJet 500 Series	£20	£21
HP DeskJet 660	£22	£23
HP DeskJet 850	£22	£23
HP DeskJet 310/320	£15	£21
HP DeskJet 1200	£20	£21
HP PaintJet XL300	£16	£18
Kaga/Taxan 810/815	£5	–
Pan 1170/1180/1150	£7	–
Pan 1123/1124	£7	–
Pan 2180/2123/2124/2135	£7	£14
Pan 1624/2624	£8	–
Pan 3626/3696	£11	–
Star LC10/20/100	£5	£9
Star LC200	£5	£11
Star LC24-20/24-200/240	£5	£12
Star LC24-30	£8	£12
Star ZA/XB24-200/ZA250	£5	£12
Star SJ48	£16	–
Star SJ144	£5	£8

Miscellaneous

Canon BJ10ex/sx Battery Pack	£33
Epson 0K Serial Interface	£29
Epson 8K Serial Interface	£75
Epson 32K Serial Interface	£95
HP DeskJet 500 FX Emulation Cart.	£49
HP DeskJet 500 Dustcover	£6
HP DeskJet IBM Emuation Cart	£57
HP DeskJet 320 Battery Pack	£33
HP DeskJet 320 Parallel Cable	£12
HP DeskJet 1200 PostScript SIMM	£499
HP DeskJet Prestige Elite Font Cart	£55
HP DeskJet Letter Gothic Font Cart	£56
HP LaserJet IIIP Lower Cassette	£115
HP LaserJet 4 Lower Cassette	£205
HP LaserJet 4Si Duplex Unit	£475
HP LaserJet Font Cartridges	from £45
HP LaserJet FX/IBM Emulation cart	£79
HP LaserJet 4P A5 Paper Feeder	£85
HP LaserJet 4 Envelope Feeder	£199
Panasonic KX-P4420 Ozone Filter	£9
Panasonic KX-P4450 Ozone Filter	£20
Panasonic Serial Interface	£49
Star 8K Serial Interface - LC range	£52
Star 8K Serial Interface XB/ZA	£39
Dustcover for 80 column printers	£6
Dustcover for 132 column printers	£10
80 column Perspex Printer Stand	£12
132 column Perspex Printer Stand	£18

On-Site Warranties

Model	1 year	3 year
Brother LH630/631/660	£34	–
HP Mono DeskJets	£32	£40
HP Colour DeskJets	£45	£85
HP LaserJet 4L/4P	£78	£100
HP LaserJet 4+4M+	£135	£185
HP LaserJet 4V/4MV	£425	£485

Ink Refill Packs

Canon BJ10sx & BJ200/230 2 pack	£12
Canon BJ300/BJ330 2 pack	£12
HP DeskJets Hi-Capacity 2 pack	£24
HP DeskJets Hi-Capacity 5 pack	£35
HP DeskJet Colur Refill	£49

Compatible Ink Cartridges

Black Cartridge for Canon BJC800	£10
Colour Cartridge for Canon BJC800	£12
Black Cartridge for Canon BJC600	£25
Colour Cartridge for Canon BJC600	£26
Black Cartridge for Epson Stylus Col.	POA
Colour Cartridge for Epson Stylus Col.	POA

Paper & Labels

A4 Cut Sheet Paper - 500 sheets

A4 90g Laser/Inkjet Paper	£7.00
A4 80g Laser/Copier Paper	£3.00
A4 80g Coloured Paper	£3.50

Inkjet Paper & Transparencies

Canon BJC A4 Transparency (50)	£39.00
Canon BJC A4 Paper (50)	£22.00
Canon BJC800 A3 Paper (50)	£45.00
Epson Stylus 360dpi A4 Paper (50)	£17.00
Epson Stylus 720dpi A4 Paper (50)	£19.00
Epson Stylus A4 Transparency (50)	£59.00
HP DeskJet Glossy A4 Paper (50)	£35.00
HP DeskJet A4 Transparency (50)	£35.00
HP DeskJet A4 Paper (200)	£15.00
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Image+ 90g A4 Paper (200)	£10.00
Image+ 100g A4 Paper (200)	£12.00
Image+ 120g A4 Paper (200)	£14.00
Image+ A4 Transparency (50)	£28.00

Fanfold Paper

1000	60g	9.5" x 11"	- 1pt	£6.50
2000	60g	9.5" x 11"	- 1pt	£11.00
1000	60g	9.5" x 11"	- 2pt	£21.00
700	60g	9.5" x 11"	- 3pt	£28.00
1000	60g	15" x 11"	- 1pt	£8.00
2000	60g	15" x 11"	- 1pt	£14.50
1000	70g	True A4	- 1pt	£9.00
2000	70g	True A4	- 1pt	£15.00

Continuous Fanfold Labels

1000	89mm x 36mm Single Row	£4.50
1000	89mm x 36mm Twin Row	£4.80
1000	89mm x 49mm Single Row	£4.95
1000	102mm x 36mm Twin Row	£4.70

Laser Lables (on A4 sheet)

2400	70mm x 37mm (3x8)	£15
2100	70mm x 37mm (3x7)	£15
1600	105mm x 35mm (2x8)	£17
1400	105mm x 38mm (2x7)	£16

Printer Sharers

Manual Printer Sharers

Connects	Serial	Parallel
2in/1out	£12	£13
2in/2out	£28	£29
3in/1out	£15	£17
4in/1out	£24	£26
5in/1out	£27	£28

Note: Serial sharers have 25-way 'D' type female connectors and parallel sharers have 36-way Centronics connectors

Automatic Parallel Printer Sharer Buffers

Type	0Kb	256K	1Mb
2in/1out	£29	–	–
2in/2out	–	£105	£134
4in/1out	£45	–	–
4in/2out	£69	£124	£149
8in/1out	£64	–	–

Automatic Serial Printer Sharer Buffers

Type	0Kb	256K	1Mb
2in/1out	£27	–	–
2in/2out	–	£124	–
4in/1out	£44	–	–
4in/2out	£69	£147	–
8in/1out	£62	–	–

Note: All automatic sharers and buffer products have 25way 'D' female connectors.

RAM Expansion for Auto Sharers

	256K	1Mb	2Mb
RAM Module	£59	£78	£124

Compact Convertors

Serial to Parallel Convertor	£49
Serial to Parallel Convertor/Buffer	£55
IEEE-488 to Centronics convertor	£49
RS232 to RS422 Convertor	£37
Parallel Line Extender	£37

Pocket Buffers

Type	256K	1Mb	2Mb
Parallel Flash Buffer	£65	£98	£138
Parallel Turbo Buffer	£85	£125	£158
RS232 Plotter Buffer	£155	£184	£330

Full Colour Printer Accessories Catalogue available on request

Printer Cables

Type	1.8m	5m	10m
PC Parallel - 18 wire	£4	£8	£13
PC Parallel - 25 wire	£5	£10	£15
25 'D' Male/Male	£4	£8	£13
25 'D' Male/Female	£4	£8	£13
36 Cent Male/Male	£7	£10	£15
BBC Parallel	£5	–	–
9 'D' Female/25 'D' Male	£8	–	–
Archimedes Serial Cable	£9	–	–

Aries

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As one of the largest dealer in Acorn software in the UK, we doubt that you will find any of the titles listed here cheaper alsewhere.

Also if there is something you don't see listed, give us a call and we will attempt to source it for you and give you the best price.

All software requires at least 1Mb RAM and RISC OS operating system.

Special notes
† - not suitable for RiscPC
†† - requires 2Mb RAM
‡ - hard disk required

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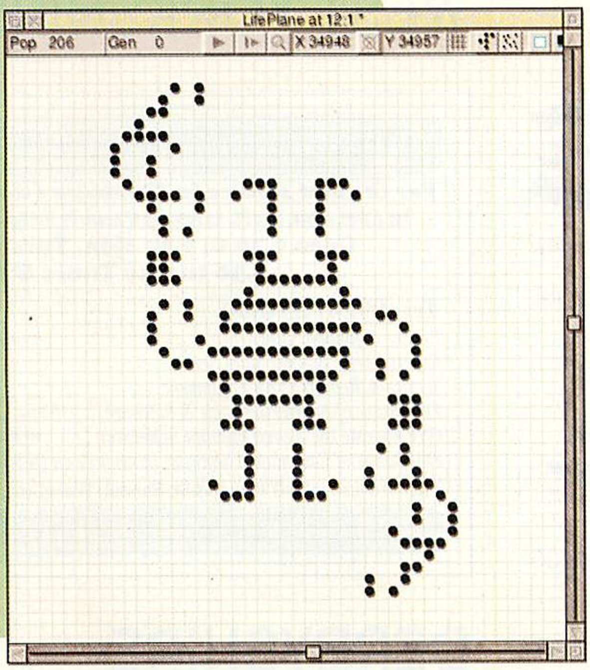
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Digital meets ARM

The DEC corporation and ARM Ltd have teamed up to create the next generation of super-fast RISC processors, codenamed StrongARM. Our intrepid reported, Chris Mellor, investigates what this means for the future of Acorn technologies, from Acorn desktop machines to Online Media set-top boxes. Don't miss the future of ARM Ltd's chip designs, next month.

Life in the '90s

Okay, so the Game of Life is old hat and passé, but just wait until you see Chris Taylor's stunning *MacroLife*. It's incredibly fast, can handle huge amounts of space, and is macro-based, ensuring hours of flexible fun. If you've ever been fascinated by cellular automata (haven't we all), then *MacroLife* is for you.

Prophet 2

Prophet, one of the most popular accounting packages on the Acorn platform, has been revamped and brought bang up to date with version 2. But how does it fare against other Acorn packages, and the industry-standard heavyweights from the PC world? Find out next month...

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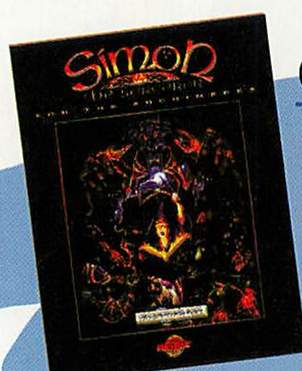
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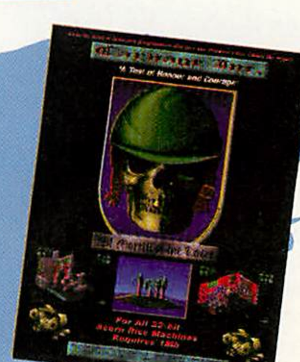
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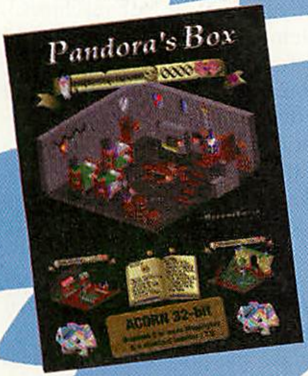
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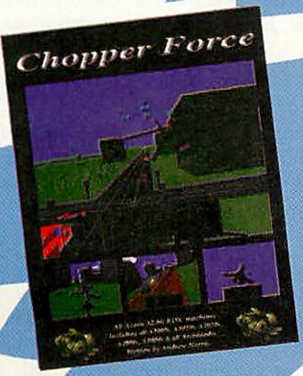
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REGAN

The Moxon Interview

Ben and Jonathan Finn

They see *Sibelius* and decide they just *have* to buy the system – money is no object

There's an area where Acorn machines are making their mark, and it's not in publishing, education, graphics or any of the traditional markets. It's in music processing, and the program that's the driving force behind it is, of course, *Sibelius*.

The brains behind the program, and the company Sibelius Software, are brothers Ben and Jonathan Finn (left and right respectively). They've been working on the program for quite some time – they started in 1987, when the first Archimedes were launched – and now they're reaping the rewards. *Sibelius* has become the darling of the computerised music industry.

'We didn't start out on the project in a hard-nosed way,' says Jonathan, who now concentrates on the programming aspects of the company. 'We were working for a major composer, and one of his copyists said it would be nice to have a computer do all the work. So we decided to write such a program.'

The brothers had just started at Cambridge and Oxford Universities at the time, and spent most of their spare time creating *Sibelius*. By the end of their courses the program was in use, and they realised it was streets ahead of the competition, even though they hadn't actually gone out and checked what was already available.

'*Sibelius* was written from scratch, and turned out to be faster and better than Mac packages like *Finale*,' explains Ben, who runs the Cambridge-based office and deals with sales and marketing. 'So we decided to sell it. We sell a lot to people who already use Macs or PCs. They see *Sibelius* and decide they just *have* to buy the system – money is no object.'

One of the unique things about Sibelius is that it mainly sells complete systems, rather than specifically selling a piece of software for Acorns. The cut-down version, *Sibelius 6*, has been selling well, but major sales are to professional composers who want the system, and don't really care what the computer actually *is*.

'We're also a very international company,' says Ben. 'It's amazing how quickly you can dominate a whole country if you have the right product.'

'We have six staff,' says Jonathan, 'and one of them is dedicated to the international marketplace. That's unusual for an Acorn company.'

However, there is one important respect in which Sibelius is very much an Acorn company: *Sibelius* is entirely written in ARM assembler, which means it will only run on Acorns.

'We're in the same situation as Computer Concepts with *ArtWorks*,' says Jonathan. 'We wrote *Sibelius* in assembler, and bypassed a lot of the operating system for faster redraws and so on. In fact, we started writing it under Arthur, so we had to invent a lot of things, like Postscript printer drivers and a font manager. One result is that it runs perfectly happily on 1Mb machines.'

And one problem CC had when deciding to release *ArtWorks* for the PC was that their programmers had to re-code from scratch. So will *Sibelius* be converted to other platforms?

'We don't want to do it, and we're not,' says Jonathan. 'With the Risc PC you can fit a PC card and run *Sibelius* alongside *Cubase* for a really powerful system. So we don't need to convert it.'

But, of course, programs are constantly developed, and the brothers aren't resting on their laurels. So what does the future hold?

'We want to make the program more like a sequencer as well,' says Jonathan, 'and do some really impressive things with MIDI.'

'We're looking in three directions,' says Ben. 'The first is to add bits to the program – we have a huge list of features to add. Second, Acorn machines are beginning to become more available internationally, and we're part of the process of making this happen. And finally, we want to make more people hear about us: we've sewn up the classical composer market, but what about jazz, for example.

'We have a German version of the program nearly ready to go – we're just waiting for the manual – and we're looking into Japanese and Albanian versions. Japanese will be challenging, and we'll have to try to get round the different alphabet somehow, but it should be worth it. As for Albania, the government is setting up a National Music Centre, and it looks likely they'll be equipping it with *Sibelius*.

'We're also planning to set up a PD library of scores in *Sibelius* format and distribute it via the Internet and post. It'll make music available much more cheaply to schools, for example.'

And it'll help to establish *Sibelius* as an industry standard.

'Most people just want an excuse *not* to buy a PC, as far as this is concerned' says Ben. 'The Risc PC with its PC card is a great excuse, and when they buy our systems, they're delighted with the whole computer.'

Music to my ears. AU

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This picture is original artwork produced using Studio24 by Walter Briggs of Kingfisher Graphics

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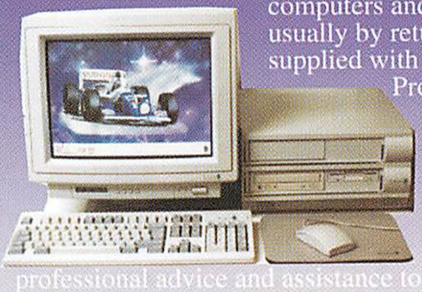
PAL Coder PLC/3



The Pineapple PAL Coder PLC/3 enables you to feed the output of your Archimedes computer to any Video recorder or TV set with a video or SCART input. It is fully compatible with all Archimedes models. The PLC/3 provides a standard composite video output on a BNC connector and also an S-VHS output. Measuring just 5.0" x 2.5" x1.25" the unit is external to the computer and connects to the monitor socket via a cable which is provided. The monitor then plugs into the PLC/3. For older computer models with 9 pin monitor sockets, two adapters will also be required.

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